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THE
PHILADELPHIA
MEDICAL MUSEUM,

CONDUCTED

BY

JOHN REDMAN COXE, M. D.,

VOL. I.

Philadelphia :

PRINTED BY ARCHIBALD BARTRAM,
FOR THOMAS DOBSON, AT THE STONE HOUSE, No. 41, SOUTH SECOND
STREET.—AND FOR SALE BY THE BOOKSELLERS IN DIFFERENT
PARTS OF THE UNITED STATES,

.....

1805.

District of Pennsylvania, to wit:

BE IT REMEMBERED, that on the eighteenth day of May in the Twenty-ninth year of the Independence of the United States of America, A. D. 1805. Thomas Dobson of the said District has deposited in this Office the Title of a Book the right whereof he claims as Proprietor in the words following to wit :

“ The Philadelphia Medical Museum, conducted by John Redman Coxe, M. D.”

In conformity to the Act of the Congress of the United States, intituled “An Act for the encouragement of learning, by securing the copies of Maps, Charts, and Books to the authors and proprietors of such copies during the times therein mentioned.” And also to the Act entitled “An Act supplementary to an Act entitled “An Act for the encouragement of learning by securing the copies of Maps, Charts, and Books to the authors and proprietors of such copies during the times therein mentioned,” and extending the benefits thereof to the Arts of designing, engraving, and etching, historical and other prints.

D. CALDWELL,
*Clerk of the District
of Pennsylvania.*

TO
JOHN REDMAN, M. D.

PRESIDENT OF THE COLLEGE OF PHYSICIANS

OF

PHILADELPHIA,

WHO IN THE EIGHTY-THIRD YEAR OF HIS AGE,

RETAINS THE CHEERFULNESS OF YOUTH,

[DERIVED ALIKE, FROM A REVIEW OF A WELL-SPENT LIFE, AND
FROM PROSPECTS OF HAPPINESS BEYOND THE GRAVE ;]

THIS VOLUME

OF THE

PHILADELPHIA MEDICAL MUSEUM,

IS DEDICATED,

AS A SMALL TESTIMONY

OF

RESPECT, GRATITUDE, AND AFFECTION;

BY HIS GRANDSON,

JOHN REDMAN COXE.

49330

P R E F A C E.

HAVING now brought to a conclusion the first Volume of the PHILADELPHIA MEDICAL MUSEUM, it is incumbent on the Editor to return his warmest acknowledgments to those Gentlemen who have so kindly patronized the undertaking.

The value of a work of the present description, must evidently depend on the importance of the communications committed to the charge of the Editor; and he may justly boast of the excellence of those specimens which the present Volume presents to the public. The addition of the Engravings, unpromised in the prospectus of the work, (whilst they add so greatly to its value, and are so creditable to the improvement of the arts amongst us;) must be considered as a strong proof of the desire to render it of as much utility, at the most moderate expense, as lies in our power.

The Editor may be permitted to congratulate his Medical Brethren, on the flattering prospects which two *additional* periodical publications must necessarily produce in the science of medicine throughout the extensive regions of America. When it is considered that but a few years have elapsed since the first work of this kind was carried into effect, we cannot but regard it as highly characteristic of the increasing energy of our scientific researches.

The approbation which this work has already received, cannot but prove highly grateful to the Editor; and, whilst he solicits a continuance of that aid he has already so largely shared; he can only say, that no exertions on his part will be wanting, to render the Medical Museum as extensively useful as possible. This, he trusts, he shall be able to effect, by the measures adopted to receive as soon as possible the earliest European publications connected with medicine, as well as by the experience he has now acquired, which he hopes will render this Work each year, more and more worthy the acceptance of the medical world.

PHILADELPHIA,
May 20th, 1805.

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ADDRESS

TO THE PHYSICIANS OF AMERICA.

AN ATTEMPT to establish a Periodical Publication, in some measure analogous to the New York Medical Repository, may, at first view, be regarded as unnecessary: the numerous works of this description in every part of Europe, by the rapid diffusion of that information, which otherwise must be confined to the breasts of individuals, are a sufficient proof of their utility; for, without diffusion, investigation and discovery are of no advantage to mankind.

As by far the greater number of practitioners have neither leisure nor opportunity for such extensive reading, as is essential to keep pace with the various discoveries and improvements in the science of medicine; every plan, by which, both time and expense may be lessened, must essentially prove beneficial to our profession. In the extensive regions of America, this mode of communication is particularly useful, as many, from their remote situations, must otherwise remain in ignorance of all advancement in the practice of physic. Hence, so far from such a work being unnecessary, a few years, will probably augment greatly their number throughout the continent of America.—The extensive circulation of the Medical Repository, now continued through seven volumes, evinces the favourable opinion of the medical world;—nor can there be a doubt, that the facility of communication will add greatly to the energy of those who may be disposed to convey their information through these channels.

The early communication of new discoveries, is, of all others, most essential to the physician, without the necessity of referring to their numerous sources. All that is valuable may be easily obtained through the means of these periodical works; and pieces, which would otherwise perish in oblivion, are hereby preserved for the benefit of man.

The Editor cherishes a hope, that, in the principal city of the Union, a work, which ought long since to have appeared, will not languish from a dearth of materials.—Measures have been taken to insure the earliest information from Europe, of the improvements in this important science, which he trusts, will, in a short time, enable him to add greatly to the utility of the work. The first number he now submits to the patronage of the profession,—whose aid in this city has been very liberally accorded.

The Editor can only add, that no exertions will be wanting on his part to render it as useful as possible; time will point out those errors which are to be amended, and those deficiencies which are to be supplied. He ventures therefore with confidence to solicit such communications from the Physicians of the Union, as they may from time to time have it in their power to bestow.

Sept. 17, 1804.

PHILADELPHIA.

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MEDICAL MUSEUM.

VOL. I.....No. I.

TO DR. JOHN REDMAN COXE.

DEAR SIR,

I SEND you herewith for your Museum, an extract from Dr. Mitchell's letter to Governor Colden, containing an account of the yellow fever as it appeared in Virginia in the years 1741, and 1742. A copy of the letter was put into my hands by Dr. Franklin, by whom it had been transcribed, a short time before his death, and was highly useful, as you well know, in directing me to that mode of practice which I pursued in the yellow fever of the year 1793.

From, dear Sir,

Yours sincerely,

BENJAMIN RUSH.

PHILADELPHIA, July 31, 1804.

“ IN giving you an account of the pestilential distemper which has lately raged in Virginia, I shall not touch on any thing relating to it, which you have had a full account of already in the same or like disease; that I might the better consult leisure for writing, and spare you the tedious trouble of reading. For which reason it would be needless here, to enter into a particular enumeration and description of all the symptoms which accompany this dire disease; they being no more, nor no fewer, than what are commonly ascribed to, and may be observed in most

malignant fevers : besides, they are already enumerated by Dr. Warren. The symptoms and three remarkable stages of our disease, are much the same as those observed by the said author in the malignant fever of Barbadoes ; but I shall recount those symptoms, which appeared to me to be pathognomic and inseparable from the disease, at least when rightly formed, as they seem not yet to be so well known ; by which this fever will appear to be of the malignant kind, as it generally resembles those that are contagious, by its first appearing with a pain in the head and back and about the stomach, succeeded by grievous anxieties and oppression about the præcordia. And in general this distemper may be defined to be, a pestilential fever proceeding from a contagious * *miasma sui generis*, which inflames the stomach and adjacent viscera, obstructs the biliary ducts, and dissolves the adipose humours ; to which generally succeeds an effusion of a bilious or other yellow humour upon the external or internal surface of the body, unless prevented by some means or other.

“ Those pathognomic symptoms appeared to be the following six ; of which the three last are more peculiar to it. 1. A very great and sudden debility, without any manifest cause. 2. A feverish anxiety, generally very grievous. 3. A short, quick and difficult orthopnaic respiration, after the fever is formed. 4. A contracted deep pulse ; the artery feels tense, but the pulse is compressible, to which succeeds a depressed, or soft and low pulse, after the state of the disease, or after the yellow effusion appears. 5. A pain of the scrobiculus cordis, either much complained of, or to be felt on squeezing that part ; and more or less severe according to the severity of the disease. 6. A yellowness in the eyes or all over the body at the state of the disease ; unless prevented by colliquative or critical discharges ; to which may be added a violent and unusual kind of pain of the head, unless it is drowned as it were, in the more grievous complaint about the præcordia.

* It is to be remembered that this was written, when no doubt was entertained of the contagion of yellow fever. E.

“The proximate causes and state of the body in this disease may be pretty evident, to those versed in the animal economy, from the following anatomical dissections.

“Feb. 14, 1741-2. At the request of Richard Chichester, Esq. in Virginia, and in the presence of him and several others, I opened the body of one of his slaves who died of this disease. This was the body of an elderly woman past forty, who died the day before, on the fourth of the disease, with the following complaints: grievous and violent anxieties, occasioned, as she said, by the sickness of her stomach, severe pain of her head and back returning by intervals, contracted hypochondres, and scrobiculus cordis painful to the touch, short, quick and interrupted respiration, with deep sighs and heavy groans, a slight raving rather than delirium, a black tongue, unquenchable thirst, tremors, very quick and depressed pulse, the eyes very yellow, a sudden and severe pain about the navel a few minutes before death.

“After cutting the teguments of the abdomen, the fat of the body appeared very yellow, so as to be noticed by the bystanders, and was indeed as yellow as the eyes commonly are in a jaundice. Upon penetrating into the cavity of the abdomen and laying the teguments aside, I was surprised to see no such thing as an omentum; at first I imagined I had tore it off, or removed it to one side with the teguments; but in vain was it sought for in the whole body. There appeared a few things like the blood vessels of the cawl adhering to the place where it is generally connected to the stomach and colon; the traces of which connection might be discerned; but there were no more remains of its substance, than a little yellowish thin oily liquor floating up and down among the intestines and about the mesentery.

“The liver appeared turgid and plump without any blemish on its outer convex surface; but on the concave surface, two-thirds of it was of a deep black colour, round the gall-bladder seeming to be mortified or corrupted.

“The gall-bladder appeared outwardly of a deep yellow, but within was full of a black ropy coagulated atra-bilis, which

sort of substance likewise obstructed the porus biliaris and ductus choledochus. This atra-bilis was hardly fluid; but on opening the gall-bladder, it retained its form and shape without being evacuated, being of the consistence of a thin extract, and withal glutinous and ropy like soap when boiling: this black matter seemed so much unlike bile, that I doubted if there was any bile in the gall: it more resembled bruised or mortified blood, evacuated from the mortified parts of the liver surrounding, although it would stain a knife or probe thrust into it of a yellow colour, which, with its ropy consistence, seemed more peculiar to a bilious humour.

“ The duodenum was of a deep yellow colour as usual upon its outside; but where contiguous to the cystis fellea, had a mixture of a deep green or eruginous colour intermixed with its yellow; within, it contained a viscid bile, or rather a yellow mucus, closely adhering to its tunics mixt with a little of the black bile, like that contained in the cystis. Its villous coat appeared to be lined with a thicker fur or slime than ordinary, which being scraped or peeled off, the other vascular and muscular coats of the gut appeared red and inflamed.

“ The stomach seemed manifestly inflamed; it had on its outer surface, towards its upper orifice, two large broad spots of a dark red colour, somewhat resembling the flushings in the cheeks, or a rose in the leg; it had nothing within but a little drink which had been just swallowed, and some of the black choler, resembling that in the gall-bladder, floating upon it, which was of a blacker colour here than in the gall-bladder itself; it looked ruddy within as if it had been inflamed there likewise; its villous coat appeared, like that of the duodenum, more fuzzy and slimy, as if it were swelled or distended, which was particularly remarked by all others who opened any bodies that died of this disease.

“ The lungs, instead of being collapsed, were rather inflated as in inspiration; they were all over full of black or livid spots, some as broad as the palm of the hand, others much smaller; on which spots generally were to be seen small vesicula or blif-

ters, like those of an erysipelas or gangrene, containing a yellowish humour.

“ I did not so curiously examine the other parts, as I saw no defect in any: and these seemed sufficient to shew the cause of her death, and account for the several symptoms of her disease: only the blood vessels in general seemed very empty of blood, even the vena cava and its branches; but the vena portarum was full and distended as usual; the blood seemed to be collected in the viscera; for upon cutting the lungs, or sound liver, or spleen, they bled freely. The brain was not opened, for want of conveniencies at hand; but it did not seem to be affected in the disease, and was not affected in three more who were opened.

“ This woman was taken with a pain in her head and back, extending from the loins as far as the region of the liver, with great sickness at her stomach, succeeded by chilliness, burning fever, anxieties, &c. and was treated with a snake-root sweat in the time of her disease; but took a vomit at its first seizing her, which brought up much dark, bitter choler, without any relief. She was in perfect health before this distemper seized her all of a sudden, as she was at work.

“ The day before, I opened likewise a girl about twelve or thirteen years old, who had been dead about two or three days, and was preserved on purpose for me to open. She died on the sixth or seventh day of the same disease, with which the other and several in that family had died. In her, the distemper was left almost entirely to nature, except about four or five ounces of blood which had been taken from her, and the plentiful use of diluting teas. A little before her death, she complained in the same manner with the other, of a most violent pain in her belly about the navel, succeeded by grievous and intolerable anxieties: they had no suspicion of a yellow fever at that time, and so did not notice her eyes.

“ There was little difference between the affection of the parts in her, and the one whose case has been related. The fat of the body did not appear quite so yellow; but the liver had a much greater and deeper mortification or blackness on it, the

whole under or concave surface of it was very black as far as to the very edges, which penetrated very deep into its substance about the gall-bladder, which was full of the same atra-bilious glutinous ropy humour as in the other. The omentum was entirely consumed or destroyed in this subject, in the same manner as in the other, whose case has been related; and a little yellow oily matter floated up and down in her abdomen. The stomach and duodenum were affected much as in the preceding case, only there was little sign of any external inflammation on the stomach. The lungs were affected in the same manner, but not with so large or deep black spots.

“ In the spring of the year 1737, there were two more opened, who died of the same distemper, in whom the parts were affected in the same manner as has been related in the first case, particularly as to the destruction of the omentum, blackness of the concave surface of the liver, contents of the gall-bladder, inflammation of the stomach and spots on the lungs, as he who made the dissection and others that were present at it, particularly informed me. September 1742, another was opened who had died of the same distemper, as the two persons above related; although got from a contagion which was supposed to have come from a different place: in him the omentum was likewise entirely consumed and destroyed; the stomach a little inflamed, but no blackness was discerned on the outer surface of the liver, and its inner substance was not looked into, although the cystis fellea and biliary ducts were full of the same black glutinous coagulated matter, as in those cases I have related.

“ The following account of the state of the blood which I have carefully observed in this disease, may likewise help to illustrate its nature, and shew the state of the body in it. The blood extracted by venesection is of a deep red or florid colour, appearing to be thin and fluxile, with no sily inflammation, crust, or skin whatever upon it when cold: the crassamentum is broad, shallow and floating, being easily divided by the fingers; the serum makes about two-thirds of the whole blood,

or more, when let at, or nigh the state of the disease; and about one half at the beginning: after the state or height, it seems by the pulse to be more: a large proportion for an acute continual fever; even those who are bled after a received contagion before the fever is formed, have a thin dissolved florid blood, even in winter. This was the constant state of the blood in about thirty or forty whom I have known to have been bled, at all seasons of the year. But the arterial blood which I have had an opportunity of seeing was very different. Feb. 17, 1741-2, five or six ounces of blood were taken from the temporal artery of one labouring under this disease, on the fourth day, just as the yellowness began to appear in the eyes, attended with a stupor; this blood was not more florid than what the venous blood generally is in this distemper: when cold it had a purulent yellow skin or inflammatory crust on the top, exactly resembling the crust on the venous blood of pleuritics, but not very thick, although tough and not easily divided; the crassamentum was very cohesive, thick and blackish at bottom; the serum made not above a sixth or eighth part of the whole, which was of a deep yellow or saffron-colour, and would tinge the finger or a linen rag dipped into it, of the same colour as if dipped in gall; deeper than is commonly to be seen on a rag dipped in the urine of persons in a jaundice. On this every one that saw this blood was convinced that the distemper was what is generally called the yellow fever in America.

“Dr. Langrish says, we are not yet well informed of the state of the blood in malignant fevers; this perhaps may be some help to a more certain and general determination of that necessary point.

“It is of the greatest importance in the cure, to know the course and stages of this disease, and the different changes it undergoes from first to last; with the times when they may be expected. By an account of this we may satisfy an ingenious query of the learned Dr. Clifton in his Hippocrates, p. 260, to wit, ‘Whether the observations concerning the course and periods of acute diseases, delivered by Hippocrates, hold true in

places at a greater distance, such as the East and West Indies, America, &c.?" This is reckoned a disease as peculiar to our new world as any other, and consequently as fit to adjust this matter by; which, if once determined, may make those excellent observations as universal and extensive as they are useful. But I have not only observed this; but likewise other epidemic diseases, which owe their rise to a certain uniform cause, which seem to be the diseases chiefly pointed at by Hippocrates in his Prognostics, to have the same course and periods in Virginia as delivered by the father of physic.

"This fever was exasperated on equal or unequal days, till the fourth, which was what is called the state of the disease here in Virginia, in the winter and spring season, when the disease has chiefly raged here: on this day the signs of the yellow effusion began to appear, either in the eyes, or by vomiting and purging; this day was the index of the seventh. All good changes or favourable symptoms now denoted recovery on the seventh, as any bad appearances on this day portended death on the sixth. If the exacerbations were on equal days, they generally died in the third paroxysm, or the sixth day; but if on unequal days, they recovered on the seventh. Relapses happen either on the eleventh or fourteenth, which were adjudged on the fourteenth or seventeenth respectively; and this without exception in any, except those in whom the natural course and tendency of the distemper was prevented by a preposterous method of cure, or sudden and extreme severity of the disease, and all the regular efforts of nature overset thereby.

"This distemper is remarkably contagious, of which we had the better opportunity to be satisfied here in Virginia, where we live in separate and distant plantations, consisting of numbers of servants and slaves; any of whom, if the distemper once seized, there was little security for the rest, but removal. The distemper spread rather slower than I have observed the measles or small-pox to do here; but it spreads faster and rages more violently in the spring season, or from Christmas to Whitsuntide, than any other time of the year; which I have likewise

observed of these other distempers in Virginia. But the vicissitudes of our seasons in Virginia, where the changes in the seasons are reckoned greater than in any other place whatever, or our care in preserving against it, seem to have put a stop to the contagion. But it is likely that in the West Indies where they have no such vicissitudes of seasons, which are generally observed to put a stop to a pestilential contagion in northern climes, they may hardly ever get rid of this distemper, (no more than the Turks in Asia and eastern nations do of the plague,) without a purification of the infected places, or separation of the sick. As this was the case, several prophylactics were sought for, when it got into large families; the common alexipharmic method with snake-root drams I knew to prove ineffectual.

“ The following seemed to be the only effectual prophylactic I ever knew tried, and which proved effectual in fifteen in one family, where none escaped without some preservative or another; and wherever it was duly complied with, the good effects of it were very evident. I observed, that before the fever formed itself, the sure sign of a received infection, ready to display its tragical effects, was a sudden and unusual pain of the head, generally above one or both eyes, which in some remitted with short intervals, and caused a giddiness or vertigo, rather than sharp pain, attended with an unusual feebleness and languor of the body, and often a sickness at the stomach; these complaints, I observed, were little regarded till the fever seized them very often all of a sudden, a few hours afterwards. Upon the first complaint of this pain of the head, they had six or eight ounces of blood taken from the arm. Some fell into large sweats or plentiful breathings, soon after bleeding; by which their disorders went off: but those that did not sweat and their complaints continued, took a vomit of ipecacuanha soon after bleeding; and, the night after the vomit, fell into the like sweats, by the plentiful use of tepid diluents and warm covering. After these applications the distemper never formed itself, as it ever did, when these complaints were neglected; although many had a brisk acute fever after, or in the time of their administration,

for the space of twelve or twenty-four hours, of the same nature with this fever when once formed; and all were less or more feverish in the time of their sweats, which, however, went off with them, and never returned.

“ In all those, that were bled even in these circumstances, the blood was thin, watery, and seemingly dissolved, and that in winter; a very uncommon thing at that time of year in Virginia. Some few were seized so suddenly, as not to give room for this method of prevention; which, however, in most proceeded rather from inadvertency and neglect of a slight sudden disorder, for want of knowledge of what it meant, than from want of warning.

“ In this manner we come to use emetics safely in this disease, which are supposed to be necessary by many, and sometimes much relied on; as they do indeed, when given time enough, help to prevent its worst symptoms; although they are little less than fatal in them; so that it may be truly said of them, what Celsus said of bleeding in an apoplexy, ‘ They either kill or cure.’

“ The bounds of this epistle will not allow me to be particular about several remarkable things which occur in this disease; especially in the cure of it, and in the consideration of the different *ludentia et juvantia*; but I shall take notice of a few things indicated in the cure, which, if duly complied with, afford much relief at first, and security at last, and which seem to be the chief, from which art seems to afford any considerable and signal assistance to nature.

“ The first and chief scope of the cure is to conquer the power of the disease, before it has produced any of its ill effects on the body, so as to render it more mild and tractable, than it usually is, when left to take its course; else the event will be precarious. The worst of these effects, and most to be dreaded and avoided, as we may learn from the above dissections and course of the disease, proceed from an inflammation of the viscera. The principal way to prevent which, is generally found to be by large evacuations at first; so that the chief in-

dication of curing this disease is the same as in other inflammatory fevers, viz. to keep off any local inflammation, or more universal obstruction of the capillaries, by evacuations. Plentiful bleeding is a means commonly found most effectual to obtain this end in the benign inflammatory fevers; but we cannot apply this most effectual remedy in this disease.

“ There are but two passages by which we can drain off the over-abounding serum or dissolved blood, to wit, the outer or inner surface of the body by means of sudorifics or cathartics; for the evacuation by urine is uncertain, and not always in our power. Sweating takes place in this as in most other pestilential diseases. By this manner of evacuating, we can drain off the greatest quantities of the dissolved humours, and make the largest evacuation that can be safely made, which seems to put a stop to the violence of the fever, and danger of an inflammation; but it must be observed, that the heat of the medicine, which procures this evacuation, often frustrates the good effects to be expected from it: for which reason the sweats ought to be increased to such a degree, that the largeness of the evacuation may cool the body more, than the medicine which raises them heats it; to which plentiful dilutions ought to contribute; for, from a neglect of these necessary cautions, this method of sweating often contributes to bring on an inflammation, when antiphlogistics are really indicated. Two things ought to be observed and duly complied with, to render this method of cure safe and beneficial, and never detrimental or hazardous. 1. That there be no great dissolution of the blood, nor colliquation of the humours, when it is put in practice. 2. That the spasms and constrictions of the fibres, very remarkable and easy to be discerned in this disease, and inflammation of the viscera, be not come on, when we give any heating sudorific medicine whatsoever. On this account it is, that this method of cure is not so successful in our cold winter and spring weather, when the humours are more sily, the fibres more rigid, and the body more dense and imperspirable, by which we do not sweat so freely and plentifully as is necessary; on which account I have known

this method of practice brought into such disrepute as to be entirely laid aside; whilst at other times, in a milder distemper, it has been used successfully.

“ When the sudorific course has been neglected, or cannot be attempted with safety, on account of the sudden and violent symptoms, height of the fever, plethoric habit, or load of humours in the stomach and intestines, or other abdominal viscera, or has not been so successful as might be expected: then the only relief, that I could ever find from any application, is from mild relaxing chologogue apozems, taken frequently in such quantities as to keep up a constant diarrhea, rather than speedy purgation, till there remains no further danger of an inflammation. This is often the first thing necessary to be done; for the great quantity of humours proceeding from the dissolution of the blood, which now possesses a greater space than when compacted into red globules, and the quantity of choler which is generally poured out of its ducts, joined with the other impurities of the first passages, which add much to its quantity and ill effects: these, I say, cause such a turgescency of the morbid matter, as it is called, at the beginning, that nature is never able to rid herself of these two loads, unless they are partly drained off at first by vomiting or purging. This is the practice of both the ancients and moderns in like cases: for, in this case, sudorifics endanger an inflammation which can hardly be avoided in the use of them, wherever there is a plethora of the vessels, or any fulness of the body; for which reason, all those who abound with humours of another kind, or have a great proportion of fluids to their solid parts, stand in need of this timely evacuation: and this is the condition of most of your well fed Englishmen and other new-comers to America, who have not undergone the sudorific course of our summers.

“ But it must be observed, that this evacuation is more necessary in this, than in most other fevers; even so as to become more beneficial than any other, as I have experienced; although it is generally neglected in other malignant fevers, for which reason, I shall sum up in a few words the principal

reasons and observations, which shew its usefulness. The abdominal viscera are the parts principally affected in this disease; but by this timely evacuation, their feculent corruptible contents are discharged before they corrupt and produce any ill effects; and their many emunctories and secerning vessels are set open, so as to allow a free discharge of their contents, and consequently a security to the parts themselves, during the course of the disease. By this evacuation likewise, great part of the offensive over-abounding serum of the blood is discharged in time. The very minera of this disease proceeding from the putrid miasma, fermenting with the salivary, bilious and other inquine humours of the body, is sometimes eradicated by timely emptying the abdominal viscera, on which it first fixes; after the discharge of which, a gentle sweat, does, as it were, nip it in the bud. Where the primæ viæ, but especially the stomach, is loaded with an offensive matter, or contracted and convulsed with the irritation of its stimulus, there is no procuring a laudable sweat, till that is removed; after which a necessary quantity of sweat breaks out of its own accord; these parts promoting it, when by an obsterging medicine, they are eased of the burden or stimulus which oppresses them. Hence I have often seen a more laudable and copious relieving sweat break out after such a deterging medicine, given even in the height of this disease, than after a sudorific. Premature evacuations are generally dreaded in most fevers, especially such as proceed from a depravation of the inquine humours of the body; but these contagious malignant fevers proceed from a venomous miasma received ab extrâ; which, like all other poisons, ought to be discharged as soon as possible, qua data porta. The morbid matter in other pestilentials may be most easily and conveniently discharged by sweats; but this fever requires discharges from those parts, which secern the most viscid humours from the blood, either to prevent or carry off the viscid humours which cause the yellow effusion, which we have shewn to be bile, or of the nature of bile: and the rule for evacuations, ‘quæ educere oportet, quò maximè vergunt, eo ducito, per loca convenientia,’

(Hippocr. Aph. 21. § 1.). But bilious humours are only to be discharged by stools or urine, which are the passages by which nature rids herself of this disease, as we shall see below. (Galen Com. in l. c.)

“ This is only the inverted method of the alexipharmac, in which we first sweat and afterwards purge, whereas in this method we make discharges of the redundant humours, which oppresses the parts principally affected, after which, sweat breaks out of its own accord, or is more easily procured by art. All concerned in the cure of this fever will find both these evacuations necessary; but which ought to precede the other, the skilful may be helped to determine from these considerations, joined to the following observations.

“ There are not wanting many other practical observations to support these reasons for timely purging in this disease. 1. This method I was directed to by nature herself. I observed that moderate, thin bilious stools, raised by nature for a day or two, at the beginning, prevented in a great measure the yellowness at the height of the distemper, which then terminated by sweats. And endeavouring to imitate these efforts of nature, I obtained the same good effects, from the like stools procured by lenitives. This is the best guide and surest warrant for physicians to direct their practice by, whose business it is to imitate nature by art. 2. Several, treated in this manner, had no relapses, which all had here in Virginia in the winter and spring seasons, that were treated in any other manner. Does not the doctrine of Hippocrates confirm this practice? who tells us, that improper and untimely discharges in distempers, or those things that are left behind after a crisis, occasion relapses. (Epidem. l. 4. 1132.) 3. Where the crisis is by sweat, relapses are dangerous and frequent; but where the bilious humours are carried off by stools or turbid icteritious urine, at any time in the disease; the relapse is but slight, and seldom or ever mortal. 4. In young persons under the age of puberty, of whom I have cured many, and in whom sweating cannot safely be attempted, this fever is as easily subdued, for the most part, and in the same manner, as

their other fevers, which proceed from a load and corruption of the humours in primis viis, generally are; to wit, by absorbents, attemperants and antispasmodics, mingled with clysters and lenitives, at any time in the disease; by these, the fatal convulsions and hemorrhages in those and other tender people are prevented. 5. Sweating can only be safely attempted in the first hours of the disease, whilst the matter is fluxile; which short-lived opportunity is generally let slip, and sometimes does not offer; after which, the only security against an inflammation of the viscera, is to be expected from lenitives given in the remissions, but not in the paroxysms of the fever. But it must be observed, that however these evacuations may prevent, yet neither one nor the other cures such inflammations till after concoctions; and that purgatives are offensive on account of their stimulating, as sudorifics are for their heating quality; for which reason they ought not to be given after any signs of an irritation of the vessels, or spasms about the præcordia, severe anxieties, contractions of the hypochondres, or convulsive motions of the stomach: and none but the mildest diluting laxatives are ever proper, such as whey made with cremor tartari, or tamarinds, potions of manna and rhubarb, or solutive syrup of roses, a mixture of rhubarb, sal. nitr. in broth or gruel, or aperient relaxing apozems given in divided doses.

“ But it is not these or any other method of cure commonly used, that will always prevent the mortification of the viscera, which ever seemed to be the fatal catastrophe of this disease; and was ever found to be in all the dead bodies that were looked into. For this reason it behoves every one, who has a regard for the art, or welfare of mankind, to look out for new remedies, to prevent such a fatal issue, not only of this, but likewise of other pestilential diseases. When I first perceived that the event and tendency of this disease was to a mortification, I thought of the bark, the antiseptic virtue of which has been so well demonstrated and exposed to the world; and which I have known some instances of in Virginia. Had I at the same time known of its good effects in the small-pox, which I have been since

informed of, from the Edinburgh Medical Essays, (as well as by Dr. John Fothergill in London, who advised me to the use of the bark in it, from the resemblance, that this disease bears to the small-pox; and informed me of three cases of a disease like this in Minorca,) I should have been more bold in such a practice, which seems the only known way of snatching many from the jaws of inevitable ruin. For the effects of the bark in gangrenes seemed to be to promote a laudable suppuration, which would avail but little in the parts affected in this disease. But we are informed (Edinb. Med. Essays, vol. 5th.) that in the small-pox it promotes the maturation and concoction of the morbid matter and abates the fever. This is what is wanted, when this disease tends to its fatal issue; and I can assert from my own observations of both, that both the symptoms, causes and effects seem to be much the same; at least not unlike in both these diseases, when they tend to their fatal issue, for want of this due concoction of the morbid matter, for which the bark has been successfully given in the small-pox. But does the good effects of the bark in that distemper proceed entirely from bringing a kindly suppuration into the pustules? Surely there is nothing more wanted in all these malignant contagious distempers, such as both these are, than to preserve the tone of the fibres and crassis of the blood, both which seem to be destroyed in these diseases, especially this I treat of, when they tend to a gangrenous state; but nothing seems to be so effectual for this as the bark. It is the common practice, to endeavour to remedy this deplorable case, or to satisfy this vital indication by heating cordials, as they are called; the same was the practice in much the like circumstances in gangrenes from internal causes, before the more efficacious use of the bark was known. But these are the most pernicious of all medicines, even in these circumstances of this disease, as I have seen by many instances. It is true, in other fevers these stimulating attenuating medicines become necessary towards their decline; when the mortal laxity of the fibres and grumosity of the fluids threaten a stagnation, even where they were little less than poisons at the beginning.

Some such thing is wanting in these circumstances in malignant fevers with dissolved humours, both to prevent this gangrenous disposition of the humours and sphacelation of the viscera, as well as to satisfy this vital indication which is most prevalent in them; but no medicine seems to answer; for these heating, stimulating cordials only further dissolve the broken texture of the blood, and instead of relieving sweats, promote coilliquative evacuations, and occasion spasms and convulsions of the fibres instead of restoring or preserving their tone. But in these circumstances, in malignant fevers with dissolved blood, the bark seems to be the only promising remedy: but this however, I should not have dwelt so long upon at present, had I not known the bark to be given in this distemper; to wit, about the height of the fever or state of the disease, when the fatal condition was just at hand, and that to the quantity of more than half an ounce of the powder in usual doses in a day's time; after which the person recovered, which would hardly have been the case in most other acute continual fevers, of the violence of this. I must own this is but a single instance, and not made with sufficient accuracy to determine so important a point; and I know the dangerous consequence of drawing general rules from particular observations, the bane of physic, and reproach of human reason: so that I cannot any further recommend or condemn this practice, but think it for many cogent reasons highly worthy the further consideration of the skilful; on which account I could not pass over this mention of it.

“ But whatever may be the effects of the bark in this disease, yet I know it to be often necessary and useful after it. There is a greater debility generally remains after the crisis, and the pulse is weaker and lower, than after any disease I ever saw; the solids seem to have lost their elasticity, and the blood its due crasis. This makes purging, to prevent a relapse, dangerous. At other times this fever, from an imperfect crisis, degenerates into a slow periodic fever of long continuance. In these conditions, several lose their lives; but I have known others, who seemed to be in the like danger, to be saved by the bark: I have been

informed by several judicious eye-witnesses, that this was the case of the soldiers and sailors in the late American expedition; great numbers of whom died in this lingering condition after the fever.

“ After the morbid humours are prepared or concocted, the next thing necessary to be considered, is the evacuation of them; in which three things are to be considered. 1. When any artificial evacuation is necessary to relieve or assist nature. 2. What kind of evacuations are most proper; and 3. The proper time for these evacuations.

“ As to the first, we must remember what we have above hinted; that about the time, when the yellowness appears, or about the state of the disease, the pulse turns extremely weak and low, the debility is increased, and nature is unable to rid herself of any offensive burden, at a time when she stands most in need of it: this is it, that makes artificial evacuations necessary to assist the feeble efforts of languishing nature. It is true, the sole hopes of many, in these circumstances, are placed in cordials, to strengthen the body, as is the plausible pretence: and evacuations are then dreaded above all things, on account of the debility, which it is feared they may increase. But the body is not to be strengthened, but by removing what weakens and oppresses it, which seems to be here the dissolved ferous and bilious humours stagnating in the capillaries, or thrown on the viscera. And all these acute putrid fevers ever require some evacuation to bring them to a perfect crisis and solution, and that even by stools,* which must be promoted by art, where nature does not do the business herself. On this account an ill-timed scrupulousness about the weakness of the body is often of bad consequence in these urging circumstances, for it is that which seems chiefly to make evacuations necessary, which nature ever attempts, after the humours are fit to be expelled, but is not able to accomplish, for the most part in this disease. And I can affirm, that I have given a purge in this case, when the pulse has

* Una igitur alvi spontanea solutio atque perturbatio continuam febrem tuto ac perfecte judicat, &c. Fernel. Feb. cur. Method. c. 8.

been so low, that it could hardly be felt, and the debility extreme; both one and the other being restored by it. Another thing which makes artificial evacuations the more necessary now, is the diffusion of a new morbid matter through the blood, which causes the icterus different from that which first brought on the fever, when nature is almost overcome by the conflict with the first. Evacuations are likewise the more requisite at last, if the necessary ones have been neglected at first.

"The next thing to be considered, is the kind of evacuation to be promoted; the most beneficial I have always found to be procured by lenitive cholagogue purges. Sanctorius indeed tells us, that the matter of malignant fevers is discharged by insensible perspiration, which is the general aim of physicians to obtain in these kinds of fevers, in which they seldom consider that hardly any putrid continual fever comes to a perfect crisis by sweats alone.* But in this particular fever, whenever any yellowness, even in the eyes, appears, we are entirely frustrated in our expectation of obtaining any relief from diaphoretics, in order to carry it off. This icterus proceeds from a matter which seems to be too viscid to pass off through the narrow pores of the skin, and never goes off entirely and perfectly by any ways whatever, whether the contrivance of nature or art, that ever I could observe, but by a turbid yellow lateritious urine or loose stools. The same observation is confirmed by Hippocrates, who adds to these salutary discharges, in an icterus coming on a fever, a plentiful bleeding at the nose (*Epidem. l. 1. § 3.*) Nay the fever itself, when little or no yellowness appears, is hardly to be carried off entirely without purging; for when this indication is neglected, when it first offers (all changes being generally sudden,) the fever returns with exacerbations, like the putrid fever coming after an imperfect expulsion of the various matter in the small-pox; and as often proves mortal in this case, as in any other. It is true we do sometimes see the fever brought to an apyrexia without purging, when accompa-

* Fernel. *Feb. cur. Method.* c. 8.

nied with little or no yellowness, but very seldom when it is ; but even then the crisis is imperfect, and the distemper is subject to frequent and severe relapses ; and often degenerates into a slow periodic and long continued fever, which gradually wastes and consumes the body, when this necessary rule of practice is not rightly complied with in time.”*

THE following observations were found on a loose paper in the book from whence the preceding pages were taken. They are the production of Dr. Kearsley, sen. a physician of great respectability then resident in Philadelphia.

“**T**HE yellow fever in Virginia seems well described by Dr. Mitchell, but it differs from that which appeared in Pennsylvania at the same period of time in the following particulars.

* The following Note occurs in Miller's Retrospect, vol. 2. p. 367. “Dr. JOHN MITCHELL, who was mentioned in a former chapter, as having come from England to Virginia early in the last century, appears to have been a man of observation, acuteness, and enterprise, as well as of learning. His residence in Virginia was chiefly at *Urbanna*, a small town on the Rappahannock, about seventy three miles from Richmond. He was a great botanist, and seems to have paid particular attention to the *Hybrid* productions. He wrote an useful work on the general principles of Botany, and containing descriptions of a number of new genera of plants, which was published in 4to. in 1769. He also wrote, in 1743, an ‘*Essay on the Causes of the different Colours of People in different Climates*,’ which was sent over to Mr. COLLINSON, and published in the *Philosophical Transactions*, vol. xliii. p. 102—150. Besides these, he published an ‘*Essay on the Preparations and Uses of the various Kinds of Pot-Ash*.’ *Philosophical Transactions*, vol. xlv. p. 541—563 ; and a ‘*Letter concerning the Force of Electrical Cohesion*.’ *Philosophical Transactions*, vol. li. p. 390. See *Pulteney's Sketches of the Progress of Botany*, &c. vol. ii. p. 278, &c. It is believed the same man was the author of the *Map of North America*, published in 1755, which he accompanied with a large Pamphlet, entitled, ‘*The Contest in America* ;’ and soon followed by another pamphlet, entitled, ‘*The present state of Great-Britain and North-America*,’ 1767. See *American Husbandry*, &c. vol. i. p. 285.

“ 1. Wandering pains like those attending a rheumatic fever, but much more severe, were generally much complained of from the first, by those who had the disease in Pennsylvania. These are not mentioned by Dr. Mitchell.

“ 2. A very great anxiety with sickness and pain of the stomach, attended with an excessive convulsive vomiting, which no medicine would scarce relieve. This appeared on the first or second day, but more commonly on the third, when it was generally fatal, by bringing on hiccough, inflammation of the stomach and viscera, with a large discharge by vomit, of a black atra-bilious matter like coffee grounds, mixed with a bloody lymph, or coagulated blood; which frequently put a period to the patient's life; though some recovered under this symptom, by an early discharge of this black matter by stool.

“ 3. The atra-bilious humour, as Dr. Mitchell calls it, was highly acrid, yet not so viscid as that in Virginia; which gave it a more easy passage through the biliary ducts; and being thereby more easily pumped up by the convulsive reachings of the stomach; hence by its greater acrimony it rendered this symptom more violent and fatal, than it seems to have been in Virginia.”

TO DR. JOHN REDMAN COXE.

DEAR SIR,

HEREWITH you will receive, agreeably to your request, the letters addressed to me by your late ingenious friend Dr. Drysdale, containing an account of the yellow fever as it appeared in Baltimore in the year 1794. They are at your service, to be published if you think proper, in your Museum. By thus collecting and publishing histories of our autumnal epidemics in different years, and in different cities and states, we shall, I hope, attain such a knowledge of them, as will enable us to treat them successfully, and finally to prevent their recurrence in our country.

From yours,

sincerely,

BENJAMIN RUSH.

July 31, 1804.

LETTER I.

TO BENJAMIN RUSH, M. D.

DEAR SIR,

YOU have requested a history of the yellow remitting fever, as it lately appeared in Baltimore; and I have, perhaps inconsiderately, promised to gratify your wish. The difficulties, which necessarily accompany such a task, increase in number, as I travel in imagination through the region before me;

.....“ Hills peep o’er hills, and Alps on Alps arise:”

and when I contrast them with the powers of my youth, I am almost dissuaded from the attempt. But I now enter on the

undertaking with this pleasing reflection, that you will indulge the deficiency of execution, where the critic would condemn: for I am convinced with Dr. Moore, that "those, who have the greatest knowledge in their profession, are best acquainted with its uncertainty, and most indulgent to the mistakes and errors of others."

An account of the weather, which preceded the appearance, and accompanied the progress of this awful disease to the close of its career, will be given more properly in another place. But it may not be unnecessary to mention here, the principal diseases which characterised the summer and autumn. In the *town*, the cholera made its appearance among children as early as the months of April and May; but it is very remarkable, that this disease was unknown through the summer upon *Fell's Point*. On the lower part of Baltimore, the month of May was unusually healthy, a catarrh only affecting many children. In the beginning of June, intermittents and dysenteries became more general, and as the season advanced, remittents also made their appearance. These three diseases, especially the first and last, ranged through every part of the country, and infested even the highest grounds.

But the most remarkable disease was the natural small-pox. It appeared very early in the summer and soon became epidemic. It advanced with the year, and made such devastation among its unfortunate victims, that Baltimore, perhaps, never before experienced so severe a scourge from this disease. Even they, who were inoculated in the spring, required peculiar attention; for it was so unusually insidious, that many unexpectedly suffered from its malignity.

The first case of yellow fever, that I saw, was on the 7th of August. The patient was in the fourth day of the disease, and had been harassed several hours with the vomiting of that dark fluid, so greatly resembling strong coffee muddy with its grounds. His eyes had been very red, but were now, together with his skin, yellow: the latter was dry and cool; his pulse

was slow and full. He was either oppressed with stupor—or deranged with a mild delirium. In a few hours he was dead. I could not pause a moment in believing his disease to be the yellow fever. I mentioned freely what I had seen, and expressed my apprehensions that this case might prove the prelude of a scene of calamity. The Point was now becoming considerably sickly, and many deaths occurred there suddenly, or after a very short indisposition.

The several deaths that had occurred, together with the report, that the yellow fever had made its appearance, excited alarming apprehensions in the minds of the people. An inquiry was consequently made, by three of the most respectable physicians, into the state of the health of Baltimore. On the fifteenth of August, they reported that, “Conformably to a request made by the grand jury, we yesterday proceeded to inquire into the grounds of a report, which for some days past had created very serious alarms among the inhabitants of this town, viz. that the West India yellow fever did prevail very generally at Fell’s Point, and was accompanied with its usual mortality: that there are no grounds for believing that the yellow fever is yet among us.

“After a careful examination of several persons, confined with fevers, and the most minute inquiry respecting those cases, which have lately proved mortal, we are unanimous in the following conclusions:—That the prevailing fever of that place is the common epidemic of this season, which annually visits our southern and middle states, viz. the bilious remitting fever: that the late mortality at that place, which has been greatly exaggerated by report, has not been owing to any one class of diseases in particular: that during our late very hot weather, most of the instances of sudden deaths arose from accidental causes. Many of the laborious class of the people were destroyed by the extreme heat of the sun, while employed in their usual labours. Intemperance was the cause of death to some, whilst indiscretions of different kinds proved destructive to others.

“ On the whole we are of opinion, that the mortality of this season has not exceeded that of many former ones, which passed unnoticed, &c. &c.

Signed by Doctors GEORGE BROWN,
JOHN COULTER,
LYDE GOODWIN.”

Every funeral recalled to the minds of the Baltimoreans the late calamitous situation of Philadelphia. With the hearse and the grave they invariably associated the idea of the yellow fever, which had destroyed so many thousand citizens of a rival city. It is therefore not wonderful, that an alarm should have been excited, disproportionate to the mortality, that had yet occurred. The agreeable assurances they had just received, (and I am confident, that the physicians who gave them, had not met in their search a single case of yellow fever,) calmed the apprehensions of their minds. It is indeed to be deeply lamented, that any subsequent misfortune should have broken this tranquil situation of the town.

On the fourteenth of August, Master M'C——, (who lived on Bowley's wharf, in the same store with the gentleman who died on the seventh,) became diseased. He recovered from his fever; but on the nineteenth, a yellowness was very observable over his body, and soon became as intense as in jaundice. On the morning of the twentieth of August, Mr. M——ncalled on me for advice. On the first evening of his disease, I suspected the real nature of his fever, and did not hesitate to mention my apprehensions. I attended this gentleman in company with Dr. George Brown, my former preceptor in medicine:—a person, who truly combines all the merits of a professional character, with all the endearing and respected virtues of a gentleman. Mr. M——e was attacked on the morning of the twenty-second: Mr. A----- on the evening of the same day; and Mr. A-----n on the following morning. These four gentlemen were engaged in commercial business on the same part of Bowley's wharf.

Some other persons living at the same place were also diseased at this time, but they did not fall under my observation.

The peculiar symptoms, attending the fever of Mr. M-----, from its commencement to its fatal close, called from Dr. Brown an unequivocal declaration of its nature. His apprehensions were increased by the occurrence of the other cases at the same time and at the same place. The declaration I had made near three weeks before, was now seconded by an authority of the most indisputable nature. A town meeting was in consequence summoned, which terminated in the nomination of a committee of health. Their chairman, Gustavus Scott, Esq. was a gentleman of the highest honour and integrity; and it is therefore to be regretted, that his necessary avocations from town, soon took him away from the regulation of their conduct through the scenes that followed.

Fell's Point was now becoming very unhealthy, and many cases of disease had terminated there speedily in death. On the thirty-first of August, I visited with Dr. Allendre, Mr. J. R. in the seventh day of his disease. He had now a constant hiccup, and a copious vomiting of the coffee grounds: his eyes were very yellow, his skin cool; his pulse full but so irregular, as to beat sometimes three pulsations in one-sixth of a minute; sometimes fifteen in the same period of time. He died the next morning. On the same part of Baltimore, I attended with Dr. Brown, Mr. Thomas L----- who was taken ill on the twenty-sixth of August; his apprentice boy on the twenty-seventh; and his maid servant on the thirty-first. Mr. C-----'s son Thomas was attacked on the twenty-eighth;---himself and his son Robert on the following day. A boy of captain F---'s was attacked on the twenty-seventh. In the town, three persons, who had contracted their fever on the Point, came under my observation on the twenty-ninth and thirtieth of August. All these cases, except one, terminated favourably.

While this scene of disease was extending on the Point, the town became unusually healthy. Some took advantage of this circumstance, to oppose the assertion that a yellow fever had

appeared among us, and to ridicule the authors of such a declaration. But the disease soon extended itself so widely, that incredulity ceased, and even the tongue of calumny itself was almost silent.

About the sixth of September, the healthy tranquillity of the town of Baltimore was again ruffled by the return of remitting fevers, which, together with the intermittents of this season, were almost universally accompanied with catarrhal symptoms. The tenth of this month will be long remembered by the inhabitants of Baltimore, as the day which deprived them of Mr. Stephen Wilson. He died of a bilious colic. His unshaken patriotism, as a citizen; the rectitude of his conduct, as a great commercial character; the liberality of his soul, as a humane and virtuous christian; the dignified simplicity of his manners, as a man; and the sincerity of his heart, as an inestimable friend, have left on every heart an impression, which can wear away only with life itself.

The yellow fever continued to increase on the Point in extent and malignity. Doctors Allendre and Richard Griffith, and Degraffenreidt were at the same time in imminent danger of falling victims to it. Dr. Dorling had lately died in town, and Dr. ----- Griffith, sen. on the Point, was carried off after thirty hours indisposition. The reverend Mr. Buston, of the Roman catholic church, who had been much engaged on the Point in administering the last offices to the dying, was now dangerously ill. So great was the number of the sick about the twenty-fifth, that Doctor Coulter visited and prescribed for more than a hundred and twenty persons daily.

Before the close of September, a panic spread through the town, and drove a great number of families to seek refuge in the country. As I rode on the morning of the thirtieth, through the Point, I was struck with the melancholy change induced by a very few days. The streets were no longer crowded, and noisy with business or festivity. The eye would scarcely meet a dozen persons in its longest street. In the rooms of the sick, I more particularly observed the stillness of the streets. But a

little time before, even when the reduced violence of disease would have permitted them to doze, every slumber was broken or banished by the noise without. The whole day resembled in silence the hours of night.

A happy change of weather at this time, checked the rapid progress of the fever, and rescued the town from sharing the general misfortune of the Point. The disease declined; and by the middle of October, the health-committee closed the accounts of the dead. The citizens returned to their homes and business; and in a very short time, a person passing through the Point itself, would be reminded of its late situation only by observing in some alleys the bodies of a number of dead cats.

I have been, sir, as concise as possible in the preceding observations. To have a more enlarged view of our situation, while the mind was assailed on the one part, by the actual representation of disease and mortality, and supported on the other by the wish and assurance, that our fears beheld the occurrences through a magnifying glass, you must only submit yourself to the guidance of memory while she bids the misfortunes of your own city glide before your imagination. The retrospect will remind you of that principle of the human mind, which subjects our senses to our wishes. The eye is unwilling to behold a scene that gives certainty to our apprehensions of misfortune; and we prefer lingering in a state of suspense, (so tormenting on every other occasion), to an absolute knowledge of our situation. Hope soothes an uncertainty, but deserts us when convinced. We can scarcely believe, what we wish to be untrue: so powerful is this principle, that, as you must have frequently observed, a person, while hanging over the body of a deceased friend or relation, cannot form an idea that it is dead.

Hence, sir, it was long before our citizens could shake off their fancied security, by believing the existence of danger. But when the charm was dissolved, the panic spread, like electricity, from mind to mind. Now too late, it was remembered, that the dictates of reason had been lulled to rest, and truth had been heard, but opposed, ridiculed, and contemned. ADIEU!

LETTER II.

WE have hitherto, dear sir, travelled only around the borders of our subject. We will now, if you please, take a nearer view of the disease, which, although neglected and despised for a time, at length struck the souls of our citizens with anxiety and terror.

The yellow fever, as it appeared here, tended naturally to death. A fatal case therefore will portray more strikingly its form. The eye of the physician, entering the chamber of the sick, would be arrested by a countenance of distress; the countenance of one weeping with the anguish of a broken heart. He would behold a face suffused with blood; an eye, red, watery, half-closed and sad: the parts immediately around it, swollen: its silent glance spoke forcibly to the soul, and seemed to demand its pity. He would see the tongue moist and white or clean. His hand would feel the skin excessively dry, and parched with heat; a pulse, hobbling or intermitting, slow or frequent, full or small, but always tense. He would behold the patient tortured with excruciating pains, rendered less supportable by constant exertions to vomit, till delirium mingled with his groans a frantic laugh or song.

At uncertain periods, the heat of the skin would abate for a short time, but every other symptom would continue with unremitting violence. But at length, the skin would become cool; the pulse lose its tension and frequency, and every pain cease. The fiery redness of the eye would disappear, and assume the yellow livery of bile. A yellowness would appear about the neck and gradually extend itself over the whole body. A vomiting of a black fluid would occur, resembling the grounds of coffee. The patient would be sensible of immense and oppressive weakness. As these symptoms increased, the lips would appear œdematous, and the tongue swollen. The skin would

become colder, and impart on pressure a sensation, like that of a dead person. The pulse would continue preternaturally slow, and generally acquire fulness as death approached. A hiccup would at length occur; the pulse sink rapidly and seem to pause after every pulsation, as though it were to beat no more. The blood bursts from different parts of the body---the action of the arteries is no longer felt---the heart gradually ceases its exertions, while delirium and convulsions announce the victory of death.

The primary cause of the preceding catalogue of symptoms will require a distinct letter hereafter. We will then search into the origin of a disease, whose ravages have not been confined to one ill-fated portion of the globe; and therefore we need remark only in this place, that its appearance in Baltimore seems to have arisen not from importation, but from an internal source. It will appear also that the first cases originated from a domestic cause, but that its subsequent extensive range, depended in part on communication of contagion.

But to rouse the original seed of disease into actual fever, generally requires the co-operation of secondary causes, to which schoolmen have affixed the name of exciting, or occasional. Among these, we may particularly enumerate,

1. INTEMPERANCE.

Almost all the first victims of the yellow fever, were persons habituated to the immoderate use of ardent spirits: and it is a melancholy truth, that very few of these unfortunate creatures could be rescued from death, by all the powers of medicine. So intimately are morals connected with our physical happiness, that we need but look around us with the eye of reason, always to engage in our pursuit of the one, the company of the other.---All the first occurrences of mortality by the yellow fever, were generally ascribed to the primary influence of rum. The mind was unwilling to admit a more hideous cause, while this offered to its choice.

In drinkers of ardent spirits, the fever was excited not only with more facility, but was attended also with almost irresistible violence and malignity. Even a moderate but unusual indulgence in those liquors soon roused the disease into action. A glass of wine would occasion a head-ach in those, who were much exposed to the exhalations of the sick, or to the air of infected places; and for a considerable time in September, half that quantity would affect me in a similar manner.

The intemperate use of food also frequently gave existence to the latent disease. A large supper of oysters excited the fever in one person. Even indulgence in accustomed meals, or in particular substances, was sometimes attended by similar misfortunes. A dinner of animal food would often cause an acute pain in the back for three or four days. The fever was excited in a gentleman, before he had completed his usual supper; and in another by using a small quantity of cucumbers at his dinner.

2. HEAT.

This was a very frequent exciting cause, especially when combined with fatigue, either of walking, riding on horse-back, or of labour in the sun. To the latter circumstance must be in a great degree attributed, the more general prevalence of the fever among the laborious class of citizens.—The heat of a fire produced in several instances the same effect. Hence the blacksmiths suffered peculiarly with the disease. Sitting in the cool evenings or mornings of September over a fire, caused an exacerbation or return of fever in some, who were in a convalescent state.

3. COLD.

Cold, says Sydenham,—“has destroyed abundance more, than the sword, plague and famine together.” The cold air, and dews of night, excited the fever in a great number of those

who were diseased. These powers acted with particular force, especially when preceded by sleep. A gentleman was attacked with the disease immediately after falling accidentally into the river. The transition of the atmosphere from heat to cold, which occurred about the twentieth of September, and continued three or four days, added considerably to the number of the sick; nor did the cold weather, which occurred after the beginning of October, check the progress of the disease, until aided by heavy frosts.

4. SLEEP.

Many persons awoke in various hours of the night with a chill or fever. Some were not attacked until the dawn of day.

5. MARSH MIASMA.

I am inclined to rank this also among the exciting causes, when the body had been previously exposed to contagion: Nor is it one of the most inconsiderable. This acted, when those already enumerated appeared to have been insufficient to produce disease: for a person, in whom the seeds of the fever were received, very frequently escaped its powers by exposition to pure air. Hence the disease prevailed more virulently about its primary source; and seemed more innocuous, when carried to another place, free from the influence of marsh miasma. On Bowley's wharf, the prevalence of a northerly wind during one day, would be succeeded by the sickness of several persons. The wind blew the water out of the dock so much, as to expose the mud to the action of the sun. The noisome exhalations combined their powers, with those of the contagion already acting on the body, and excited fever. On the Point the gentle showers of rain which frequently fell, were succeeded by an increase of patients; those sources of miasma, which had been dried up by the sun, being again supplied with sufficient moisture and heat to generate putrid exhalation.

Accidental circumstances sometimes excited the disease. A mate of a vessel, having received a blow on the head from a cable, was immediately attacked with the fever.

Among the preceding exciting causes, some of very discordant properties are enumerated. To account for their effects in producing the same disease, we must recur to the peculiar nature of the fever itself. The debility attending it, like that of pleurisy, is of the indirect kind, or produced by excessive action of stimuli upon the body. That it is of this nature may be inferred from the symptoms of the disease, and from that mode of treatment, which proves most successful in its cure. Causes which induce direct debility, are not preceded by a tense pulse, nor can their effects be counteracted by debilitating medicines. It may be inferred also from the means, which prevent the contagion, when the body is impregnated with it, from rising into actual fever. Did it tend to induce direct debility, would not those powers, which abstracted stimulus from the body and gradually weakened all its functions, accelerate the formation of disease? and would not those persons already labouring under direct debility, be most subject to its influence? But the causes of the yellow fever, like the contagion of the small-pox, and like wine, produce debility of the indirect kind. In the latter disease, physicians endeavour to counteract this effect by debilitating remedies. A moderate quantity of wine gives increased action to the heart and arteries, but when drunken in excess, it is followed by indirect debility. When the body is impregnated with the contagion of the yellow fever, disease must not necessarily ensue. Its own stimulus is not always sufficiently powerful by itself to produce this effect: but when assisted by ardent spirits, animal food, heat, or violent exercise, fever is excited. Is it not sufficiently obvious that, under the influence of these causes, excess of arterial action must ensue? Dr. Condict, in his inaugural thesis on contagion, published last spring, has, in my opinion, sir, treated this subject so ingeniously, that it will be unnecessary to dwell here any longer on this part of our subject.

But among the occasional causes are cold and sleep, and to these we may add grief and fear*, which cannot be said to stimulate the body. I admit this truth under certain restrictions. So far from these powers giving increase of stimulus to the body, they tend to induce direct debility, because they are of a negative nature. But let this principle in philosophy be remembered, that the abstraction of stimuli from the body is followed by increase of its excitability; this being necessarily augmented, when the means of exhausting it are diminished in number. Heat---the most general stimulus, which heaven has bestowed for the preservation of life, varies its influence with its intensity. How much therefore is abstracted from the powers acting on the human frame, when this is diminished! Sleep also abstracts an immensity from the support of life, for it is indeed a tendency to death; during its continuance, the faculties, the operations, the passions of the mind, even the influence of light itself, are totally intercepted and suspended. When so many powers, whose action exhaust the excitability of the body, cease to exert their wonted influence, does it not follow, that the system must become more sensible to impressions that remain? We may deduce a proof from a familiar fact. A drop of cold water falling on the face of a person sleeping, will not only break through the most profound sleep, but will sometimes induce convulsions also. In this highly excitable situation is the body placed by cold and sleep; and the miasmata or contagion, whose ratio to that of the excitability while acted upon by all the stimuli of health, was before too small to produce any morbid consequence, now finds the body infinitely more sensible of its impression and easily thrown into fever. To this accumulation of excitability, I ascribe also the occurrence of disease at the dawn of day. The stimulus of returning light proves in these instances the exciting cause. That this is by no means improbable

* The influence of these two are thus noticed by *Hoffman* in his directions for prevention of the plague.—“Guard against violent passions, endeavouring to preserve a constant firmness of mind, and shaking off all timorousness and dejection.”

will appear from the fact, that the sun, even in a cold morning, darting upon a person sleeping, will rouse him from his slumber. There are some, who are daily resuscitated from sleep by the return of the morning light.

But how, it may be asked, can abstemious living and artificial evacuations obviate the formation of fever, if the abstraction of stimuli be followed by increased excitability? By abstemious diet and moderate evacuations, the miasmata or contagion, though actually existing in the body, may be successfully opposed: for these counteract its stimulating properties, by mitigating their effects. But evacuations, which have been injudiciously immoderate, have occasioned the occurrence of fever on the same principles which explain its formation after cold or sleep.

In my next, we will ascend a little higher in the grade of causes, and enlarge our prospect of their general influence. May the Father of heaven, in the mean while, preserve my friend in his efforts to render his country more happy and the world more wise! ADIEU.

LETTER III.

I AGAIN take up my pen to devote a few more minutes to the duties of friendship and the prosecution of my promise. I concluded my last letter with a view of the exciting or occasional causes. We will now proceed to notice the intervals, which elapsed between the times of receiving the seeds of the disease, and the excitement of fever. These varied greatly according to the coincidence of exciting causes, and to the previous constitution of the body.

The contagion appeared to act immediately upon some, especially if an exciting cause happened to concur at the same period. The old man, who led the chair-wheels, which bore the coffins

to Potter's Field, was under the necessity of procuring his stepson to officiate for him during one day. The latter had not been till now exposed to the disease, and being at the same time subjected to fatigue in the heat of the sun, the fever was immediately formed. A person, who had nursed another during his illness, retired to the country, but was attacked with the disease in three days. It occurred most frequently within seven or eight days; but there are instances in which it was protracted eleven or fifteen days. Blane and Lind observe of the remitting fever, that those men, who had been exposed to marsh miasmata in watering places, would be taken ill several days after the ships had gone to sea; and John Hunter mentions their occurrence *three weeks* after exposure to their cause.

In many persons, fever was never completely formed. The miasmata or contagion would act upon their bodies during two and three weeks after exposure to it; but through defect of a proper exciting cause, would produce only pains in the head and back, and occasional flushings of heat and unusual sweating through the night. In several instances, only the following peculiar mark of the system being impregnated with the seeds of the disease, would occur. Six or seven nights successively would be passed in anxious restlessness. Although the mind was tranquil, and the body free from fatigue, yet it was impossible to procure refreshing sleep. If, after much tossing in the bed, a slumber would occur, it was quickly broken, sometimes by terrifying dreams; and even after being roused, the mind could not soon detect the cause of its alarm. In this manner the whole night would elapse, but an hour's grateful sleep might be enjoyed after the dawn of day. The contagion acted in these cases, like a cup of strong tea, or a small quantity of wine.

Those, who were exposed to the contagion, would be affected with headach, a heat and sense of fulness or oppression in the stomach, want of appetite, a disagreeable taste, and costiveness; a burning of the hands and feet at night; restlessness or drowsiness; heat of the skin alternating with profuse sweat,

frequently of a yellow colour. These symptoms were not always succeeded by disease; yet they proved the præcursors of the fever.

These præmonitory symptoms did not precede every case of fever. It would often seize upon its victims with sudden violence, while occupied in the various employments of life, or engaged in pursuits of business or of pleasure. A shaking or a chill would usher in the disease in some, and from its degree of intensity we might suspect the violence of the ensuing case. Torti has made this application to intermittents: "*Suspecta itaque ab exordio erit, ne in continuam degeneret intermittens, quæ cum pauco aut nullo rigore solet invadere, sed potius cum sensu caloris.*" A sense of chilliness attended the whole progress of some cases, while to the hand of another, the skin would seem parched with heat. On some other occasions, we may say with Cleghorn, that the most formidable paroxysms broke out into a burning heat at the beginning without any previous cold.

Every person was not equally subject to be affected with the yellow fever. Some escaped it, who were constantly exposed to the contagion, while the greater number suffered, although but a short time subjected to its action. Dr. Moseley observes, "Subjects most likely to be attacked with it, are the florid, the gross, the plethoric;---that sort of strong, full, youthful people, with tense fibres, who are said to resemble the picture of health. In short so are all people who are of an inflammatory diathesis, and do not perspire freely." People in every stage of life suffered under the yellow fever; although persons in their meridian were most subject to it, yet it sometimes attacked those in advanced years, and fell with remorseless violence even on infancy itself. A child, but five months old, nearly sunk under the fever, and was the first person in a large family, who contracted the disease. I believe that the proportion of mortality among young children equalled that of any other period of life. *Hume* says, the yellow fever never attacks any person in the West Indies under puberty: but the opinion of the ancient Greek and Roman physicians, that children are most liable to

malignant tertians, is more applicable to our observations on the yellow fever, when prevailing in Maryland and Pennsylvania.

Dr. LIND has remarked, that women were not subject to this fever; but during its late prevalence, they did not appear to escape it, much more frequently than men; although it proved less mortal among them. They were not so much exposed to all the exciting causes, and being naturally less inclined to indirect debility, we might *a priori* conclude, that the disease would wear in them a milder form.

Dr. LINING has declared, that the negroes were not subject to the yellow fever; and CURTIN has said, that the negroes in Jamaica were never affected by it; and that among them a pure tertian is extremely seldom known, while the whites are constantly afflicted with both. But you remember that in Philadelphia, the negroes were not exempt from the sufferings of their fellow citizens; nor did they totally escape in Baltimore. Several died. They were, however, less endangered, both from their manner of living, and from being less injured by the common exciting causes. MOSELEY has remarked, that among other persons, they, who did not perspire freely, were most subject to the yellow fever. Negroes are seldom liable to this defect: their colour tends to preserve their health, in situations and under circumstances, that would prove fatal to a white man. The black livery, with which nature has invested them, incontrovertibly preserves an unimpeded discharge of perspiration, even under the influence of powerful opposers of this excretion. The design obviously indicates the forming hand of an indulgent and omnipotent Father of the universe. The true negroes of *Sennaar*, the hottest country in the world, are of a jet black complexion, and owing to the great evaporation from their surfaces, are two degrees cooler than an European. "The African negroes," says Lord Kaimes, "though living in the hottest known country, are yet stout and vigorous, and the most healthy people in the universe." Thus they are born to endure heat, and despotic man has fashioned them to suffer labour and fatigue with equal immunity from harm. *Wilson,*

in his Essay on Climate, ascribes to their food, the freedom of the negroes from epidemics in the sugar colonies, when they rage among the whites, and even the domestic slaves. It is certainly a power, which co-operates in no small degree in producing this effect.

People of different nations also suffered unequally from the yellow fever. Those from the north and west of Europe, the Danes, the Swedes, the Germans, the Irish, the English, who were not habituated to our climate, soon sunk under its violence. The French West Indians only escaped the disease. You have noticed, sir, that according to *Deigner*, the French and the Jews escaped a dysentery, that prevailed universally among people of all other nations in Nimeguen in the year 1736:---that the Jews at Modena, agreeably to *Ramazini*, escaped a tertian fever, by which almost all the inhabitants of the town were affected. The Dutch and Italians, says *Shenkius*, held an immunity from the plague, by which a town of Switzerland was affected two years; and in *Dr. Bell's* inaugural dissertation we are informed, that the French prisoners escaped a jail fever, which attacked their guards, consisting of the soldiers of the Duke of *Buc-leugh's* regiment. Besides these several facts, we meet with others of a similar nature. *Cleghorn* says, that in Minorca the English are not so subject to pleurisies as the Spaniards. *Timoni* in his account of the plague at Constantinople, observes, that strangers generally suffer more than the citizens; yet that the Armenians are far less subject to the plague than the people of any other nation.* Pestilential fevers make great havock in Senaar, but very seldom prevail among the Abyssinians, who live upon the borders of that kingdom.† The former profess the principles of Mahometanism, the latter those of christianity.

Religion, so far as it regulates the manners and diet of a nation, will also influence the diseases, by which it is afflicted. Egypt, notwithstanding the inundations of the Nile, was much

* “ Armeni omnium nationum minime ad pestem sunt dispositi: observe illos paucissimis uti carnibus: cepis, porris, alliis, vinoque maxime utuntur.”

† Lettres Edifiantes et Curieuses, recueil iv.

more healthy, than it has been, since it became a province of the Ottoman Empire. But to diet only, the exemption of a particular people from an epidemic cannot be attributed.---The French West Indians, during the late prevalence of the yellow fever, were sufficiently exposed to become impregnated with the contagion. We have formerly remarked, that fever did not invariably follow the reception of infection, because the quantity imbibed, might have been too weak of itself to have served also as an occasional cause, and because an exciting power of sufficient force did not occur to rouse it into disease. If we reflect therefore, that beside the important peculiar predisposing habit of body; heat of the sun and intemperance in the use of ardent spirits, were the two most general exciting causes of the fever, the difficulty of explaining the phenomenon will be diminished. The French, whose constitutions have been formed by the hot climate of the West Indies, could not have been particularly affected by the heat of our sun. Even the natives of this place, or they who had long resided here, were so fashioned to the climate, whose summers they had frequently endured, that they suffered far less from the disease, than strangers of a colder region: of this class were two-thirds of those who died. We are informed by Dr. *Jackson*, that negroes arriving immediately from the coast of Africa, and the native Creoles of the West Indies, are never attacked with the yellow fever; but if they have been some time absent from the islands, and have passed this period in the colder climate either of England or of the higher latitudes of America, they are as liable to an attack of the disease on their return, as any foreigner. Besides this form of constitution impressed by climate, the French are farther removed from the influence of the yellow fever by their mode of life. They indulge themselves frugally in the use of animal food, and almost totally abstain from ardent spirits. Their custom also of having frequent recourse to enemas, must be attended with the most beneficial effects.

But the natives of colder countries are of that habit of body, which we have observed to dispose particularly to the yellow

fever. Their food also, and attachment to spirituous liquors assist greatly in precluding an escape.

Moseley has declared, that the yellow fever "is strikingly the reverse of any disease of one continued exacerbation." The observation is very applicable to the disease as it prevailed in Baltimore. It generally wore the garb of a remitting fever, and its remissions were more irregular, but more obvious than in the usual autumnal disease of that name. The periods of remission were reduced to no greater regularity, than the hours of its first attack. They would frequently occur in the morning, and as frequently in the evening. In many instances they appeared to take place two or three times in twenty-four hours. But the remissions were of a peculiar nature, being attended neither with sweat, nor diminished tension of the pulse, nor abatement of the pains; the skin only would become more cool.

Generally at the close of the third day, such an insidious remission would occur, as to deceive the physician, unless well acquainted with the disease, into a belief, that all danger had elapsed. But this pleasing illusion would quickly pass away: before the congratulations on the patient's rescue from the grave were finished, a violent exacerbation would return and too frequently terminate in death.

In many instances, the yellow fever commenced under the form of a tertian intermittent. It continued to wear this form commonly till the close of the second paroxysm, when the patient, who had flattered himself with pleasing hopes from his apparent health on the intermediate days, would now find them all dashed by the gloomy change of his disorder. After the moderation of the yellow fever by the occurrence of frost, it shewed itself in some instances during its whole progress, under the form of the tertian intermittent. The variation however of the disease never demanded a change in the nature of the remedies, but required them only to be adapted to the violence of symptoms. Of the variety of other shapes assumed by the fever, bearing different characters, as it were in masquerade, I shall treat particularly in another place.

The fever, in its favourable issue, would sometimes terminate in a tedious quotidian or tertian ague ; and in some instances in hypocondriasis. A termination by sweat was an occurrence so rare as never to be expected. *Bruce* has mentioned a dangerous bilious diarrhœa attending occasionally the conclusion of the fever. I never observed this circumstance in any case under my notice. A favourable crisis occurred on the second and third days on several occasions, when medical assistance had been early administered : but it took place generally within five or seven days, although it was sometimes protracted fourteen days.

The termination of the disease by death, occurred most frequently on the fourth or sixth days. But while many persons died in the course of twelve, eighteen, twenty-four, and thirty hours, others lingered till the thirteenth and fourteenth days. The fatal close of the fever exhibited very different appearances, according to its violence and the previous mode of treatment. *Clark* and *Balfour* have ascribed the termination in death of bilious fevers generally to morbid congestions. It is very probable their opinions are just. I observed the following symptoms attending this distressing period : Hæmorrhages—acute pains—delirium—mania and violent convulsions accompanied the last hours of some. But the greater number, whom I saw, glided almost insensibly out of life. ADIEU.*

* Although the ingenious and amiable author of these valuable letters has embraced the doctrine of the contagious nature of the yellow fever, yet it must be remembered that it was then a doctrine which had never been opposed ; from my intimate acquaintance with him I have little hesitation in believing, that had his life been spared, he would have become a powerful advocate for the opposite opinion.—*Editor.*

(*To be continued.*)

For the Philadelphia Medical Museum.

An Account of the SALUTARY EFFECTS of LIGATURES in the last Stage of a violent Case of Yellow Fever. By JAMES STUART, M.D. of Philadelphia.

SEPTEMBER 23, 1798, S—— S—— a young woman of this city, aged twenty years, and of a sound constitution, was seized with very violent symptoms of the epidemic then prevailing. When I first visited her, she lost by my direction, twenty ounces of blood from the arm; after which she took doses of ten grains of calomel and ten grains of jalap, every three hours until they operated. Large and frequent doses of calomel joined with mercurial frictions, and occasional blood-lettings were then prescribed; so that by the twenty-seventh of the month and the fourth from the attack, she had lost seventy or eighty ounces of blood; had taken one hundred grains of calomel, and twelve ounces of the strongest mercurial ointment had been rubbed in on the extremities without any good effect. On the twenty-seventh debility was great,—she sighed much,—was very restless,—complained of an intolerable sensation of burning in the stomach, and was harassed with repeated and frequent efforts to vomit, without discharging any thing except mucus, white flakes, and the liquids last taken in. Blisters were now applied to the epigastric region, and to the upper and lower extremities, which were removed in about ten or twelve hours afterwards, when the cuticle was found distended with a yellow coagulable lymph, that preserved its form without any foreign support.

On the morning of the twenty-eighth the vomiting still continued; the lower extremities were cold, and the pulse almost imperceptible: singultus was at times very distressing: the

pulsations of the heart and carotid arteries were so violent, as to be perceptible to the eye in the motion of the bed-clothes. This last symptom suggested to me the propriety, if not the necessity, of farther blood-letting; while extreme debility and an almost evanescent pulse as strongly forbade it. In this dilemma, anxious for the recovery of my patient, and forsaken by the great masters in our art, I tied a ligature on each arm, near the middle of the humerus, tight enough to impede the return of the blood in the veins, and not so tight as to stop the faint pulsations of the arteries. The veins were not turgid in less than fifteen minutes. Shortly afterwards, the fingers became violently contracted with convulsive spasms; the wrists were soon drawn into consent, and the patient complained that they were much affected with pain. Apprehending the spasms might become more general, the ligatures were removed, and in ten minutes the spasms were relaxed also. The ligatures were again applied and relaxed with exactly the same effects, so that in ten minutes, I now could with the greatest ease and certainty convulse and relax the fingers at pleasure. This alternate application and removal was continued for nearly two hours, while the pulse was perceived to grow gradually stronger; the pulsations of the heart and carotid arteries became more tranquil; the anorexia and vomiting was less and less frequent; anxiety declined, muscular strength increased, the extremities, with these changes, resumed their natural heat; and I had the pleasure to hear from my patient she was much relieved. I, now thinking it unnecessary to continue the ligatures, repeated the calomel and frictions alone. On the succeeding night symptoms of pytalism appeared, and on the twenty-ninth of the month, and the sixth of the disease, she became convalescent.

In pursuance to the success attending this my first experiment, with a view more fully to ascertain the effects of ligatures on the circulatory system, I began, on the seventh of December, 1798, some experiments on my own person.

At ten o'clock A. M. after breakfasting sparingly, my pulse was unusually *hard*, and at seventy-six in the minute; a liga-

ture was tied on each thigh ; in ten minutes, my pulse was perceptibly less hard ; in twenty, much softer and the pulsations increased in number to eighty-eight ; at half past ten, soft and still at eighty-eight ; I became languid and sleepy, and the ligatures were removed ; in ten minutes afterwards the pulse was fuller and fell to eighty-four ; in twenty, the same ; in half an hour, at eighty and full : in an hour still the same.

It is much to be regretted that numerous engagements, have as yet, prevented my pursuing those experiments far enough, to place the effects of the remedy in consideration beyond the pale of scepticism ; yet it is confidently hoped even these may be sufficient to recommend a trial of that, which promises succour to the sufferings of man at a period when art generally fails in her resources, and his sympathising fellows overwhelmed with despair, consign him to his fate !

Mr. Kelly of Leith attempted to shorten the *cold stage* of intermittents, by suspending the circulation in a *part* of the *arterial* system, by means of ligatures on the extremities, and in a number of cases very happily succeeded. He supposes the application of the *Tourniquet*, “increases the velocity and momentum of the circulatory system.” That it does, when applied as he used it, tight enough to obstruct the motion of the blood in the *arteries* of the extremities, must be evident ; but it is equally obvious, and a fact which has never before been properly appreciated, that an obstruction to its return to the heart by the veins, while the arteries remain free to act, must be attended with a revulsion from, and consequently a diminution of action in, the heart and larger arteries.

The foregoing experiments, therefore, shew,

1st. That ligatures on the extremities, when only strait enough to obstruct the blood in the *veins* ; reduce the pulse, and diminish the excitement, precisely in the same manner that blood-letting does.

2d. That excitement is the same in every different system in the animal machine, as was fully exemplified in the convulsions

of the *muscular* system, which succeeded the decline of excessive action in a portion of the *arterial* system.

3d. That a *translation** from one system to another, or from one to another part of the same system, easily takes place.

4th. That there is in some states of fever, a *concentration*† of excitement, and an *accumulation* of blood in the heart and larger vessels, while the pulse and circulation on the extremities are languid and deficient.

5th. That the debility of the voluntary functions in the malignant state of fever, is occasioned by a fulness of the larger vessels of the brain, producing compression in the origin of the nerves, and by a partial interruption of the *circulation* in the smaller order of blood vessels interspersed between the fibres of the muscles, on which those functions depend.

6th. and last. That ligatures, by detaining the fluids from the heart and larger vessels, and by accumulating them in those of the extremities, may so translate and dispose of the excitement, as to prove a most invaluable remedy in some states of fever where bloodletting would be inadmissible.

* "In febre," says Sauvages, "vires cordis et arteriarum multum increfcunt; ast illico vires stomachi, vires artuum, vires imaginationis, attentionis ad negotia moralia minuuntur, venus filet; in soporosis morbis infarctum est cerebrum aut cerebellum, conatus cerebri & meningum intenduntur, verum ea molimina dependent à viribus cordis; ergo vires cordis sæpius intenduntur, ut in apoplexia; cæteri verò artus, cætera sensuum organa fluido nerveo defraudantur." Nosolog. Tom. I. pag. 78. sect. 344.

† "Sic in agonem ducentibus," says the author before quoted, "licet conatus interni sint vehementissimi, ut patet ex interni caloris intensitate, tamen pulsus est debilis, seu exilis et mollis, quia maxima pars virium absumitur intra cor et majora vasa, nec nisi pars eorum exigua superstes ad arterias minores pertingit, in quibus explorari potest." Vid. Nosolog. Tom. I. pag. 77. sect. 340.

To the Editor of the Philadelphia Medical Museum.

On the Effects of Arsenic in three Cases of Eruption.

SIR,

I WAS requested by a young gentleman, to give him some advice and medicine, on account of an eruption that appeared upon various parts of his system, but particularly his abdomen. He informed me he had been subject to it about six months, and, upon the supposition that it was a trifling and accidental thing, and would disappear shortly, he had done nothing for it, except washing it with a solution of the acetite of lead.

It took place sometimes merely upon rubbing the skin, and would then rise in small lumps resembling moschetto bites, which in the course of the day would subside, except leaving a small vesicle filled with a thin whitish humour. By puncturing the cuticle this was discharged, and the part soon became perfectly well. Sometimes the eruptions would be circular, in the form of small ring-worms, with a space in the centre perfectly free from disease; at others, one small pimple would rise, and be attended with such an intolerable itching that it was impossible to refrain from scratching; in a day or two a number of similar ones would appear around it, occupying a surface as large as a cent. Every form of the eruption terminated in a day or two in vesicles containing a thin fluid, which in two or three more would burst, and the parts would then in a short time become entirely well. No one kind predominated or occupied particular parts, but they were interspersed amongst each other. At first the abdomen was the seat of the disease, but it gradually extended itself over the lower, and then the upper extremities, leaving the neck and face untouched. Occasionally it would nearly cease to exist upon an arm, a thigh or a leg, for a week,

and afterwards break out with its usual violence. No method of treatment, except the last, had any material influence upon it; the disposition to restoration, that would sometimes take place, appeared to be the effect of accident, for it was never permanent, and would discover itself in a degree, under every mode of cure, and even in the short intervals when no medicine was administered.

I directed the patient to keep his skin perfectly clean, and he has frequently informed me, that, while he was under my care, he changed his linen very often, and washed himself at least twice a week, with Castile soap and water. He was requested to live rather abstemious in his diet, avoiding salted and highly spiced food, and spirituous liquors, and to take a purge twice a week. After persisting in this treatment during five weeks, he called upon me and mentioned that the disease was no better, and that it began to spread in a considerable degree on various parts of him. I gave him some ungt. hydrarg. nitrat. and ordered it to be applied to the parts affected every evening. After using it for a length of time, without any benefit, it was discontinued, and a strong solution of corrosive muriate of mercury substituted. The result of this application was similar to the preceding, for although the eruptions occasionally disappeared, they still broke out on other parts, so as to exist in an increasing quantity constantly. He afterwards used a great variety of topical remedies with no better success, and at length became afraid that he was infected with the itch; but his alarms were partly quieted, by recollecting that he had not communicated it to any of the persons with whom he had slept. He was notwithstanding anxious for the exhibition of sulphur, and wished to be saturated with it, with which I complied, and directed him to use the ungt. sulph. in the usual manner, after he had taken half a dram of the flowers daily for the space of a week, but he chose to continue the dose forty days. During a greater part of this period his perspiration was strongly impregnated with the medicine, so as to be disagreeable to himself and others; and finding his situation not to be improving, he

relinquished taking it. For a small time he took nothing of any kind, but perceiving the disease to become more general over him, he became exceedingly anxious to have something effectual done, and was willing to submit to any thing that brought with it the hope of benefitting him. I now determined on a slight salivation, to which he readily assented, and preferred impregnating his system slowly, without producing much affection of his salivary glands and fauces. He took a small quantity of hydrarg. muriat. mit. every evening, and in about a fortnight from his commencing it, his mouth became sore and a salivation ensued; this medicine was still continued in the same dose ten days longer, and then omitted. This treatment was not more effectual in removing his complaint than the former ones had been. The obstinacy of the disease increased his solicitude, and he determined to persevere in the use of medicines of some kind, until a cure could be effected. I now directed him to take sulphurated antimony in pills, with a diaphoretic drink, which course he pursued six weeks, when he discovered its inefficacy and discontinued it. A vegetable diet was likewise of no benefit. The Lisbon diet-drink was next resorted to, and taken for three months under every favourable circumstance; but this remedy was not attended with more success than those previously employed. I had read of the influence of arsenic in diseases of the skin, and had witnessed it in two instances. Once in a species of herpes, and, afterwards in a large old sore, whose venereal virus had been destroyed by mercury, but whose cure could not be effected by it. As many of the usual remedies had failed in this case, and the round of them nearly completed, I thought proper to resort to this powerful but safe medicine; and preferring Fowler's mineral solution, I ordered ten drops to be taken three times a day for a week. The eruptions then began to disappear fast, and no fresh ones succeeded; and after the disuse of the remedy for a few days, a dose or two were taken daily for another week and then discontinued entirely. The disease now entirely ceased, and the skin became perfectly pure and clear; the small yellow blotches which remained, where

the eruptions had been, disappeared in a short time, upon the peeling off of the cuticle. It has been some years since this cure was effected, and my patient has continued ever since perfectly free from his former disagreeable complaint.

During my attendance upon the above person, I was applied to in a case of a similar nature, and prescribed some of the medicines employed in the preceding one, none of which in this instance had any effect except the mineral solution and mercury. After the solution had been taken a short time, the eruptions entirely disappeared, but returned, upon its being omitted. Being obliged to resort to mercury to remove another disorder which he had contracted, it was observed, that the eruptions were removed, after a salivation had taken place a short period, but broke out again when it ceased. Perceiving I was able to suspend the disease, by the use of the solution, I supposed, that, when administered a long time, it would even remove the disposition to it, especially as some change might have been effected in his habit by the operation of the mercury. Accordingly I requested him to persevere in the use of it a considerable period. Finding himself again relieved for a longer space than he had ever been before, he imagined he was entirely well, and, contrary to my directions, laid aside the medicine, upon which the eruption again recurred. The yellow fever now occurred and induced him to leave the city, since which time I have never heard of him.

Some young ladies of the Friends society, who devote much time in relieving the distresses of the poor, desired my attention to a woman, who suffered much from an affection of her face. She said it commenced in June 1799, and was attended with considerable ulcerations; that it varied during the remainder of the year, spreading occasionally over a part of the cheeks and nose, and then nearly disappeared in the ensuing winter. During this period she employed a great variety of remedies, which her friends and acquaintances warmly recommended, but to no purpose. In the spring the complaint increased, and with a view of being perfectly cured, she applied to a physician, who gave

her eight small powders of a white appearance, of which she was to take one every week, and confine herself rigidly to a mild diet. The medicine vomited and purged her so severely, that after having taken five doses, she determined to omit them, being so much exhausted by their operation, that she was scarcely able to walk across the floor, and preferred, she said, to die rather than make use of the residue. Her fauces swelled, gums became spongy and teeth loose, but no salivation ensued; when she discontinued them, her nose and cheeks were rather better, and became entirely well in the fall, remaining however a good deal swelled and of a fiery redness, similar to the appearance that sometimes occurs in the faces of those who have been intemperate in the use of spirituous liquors. Such was the aspect of her face that it was with reluctance she ever left her house, being so frequently exposed to the unpleasant remarks of those whom she would meet in the streets. She remained well one whole year, at the expiration of which, she fell down stairs, and hurt her ankle to so great a degree as to occasion it to become ulcerated: when it was almost healed her face broke out again, her palate became highly diseased, and several pieces of bone came away from the roof of her mouth. Her palate was improved, when I was requested to visit her, March 1802, but her situation in other respects was much more alarming, being infinitely worse than she had ever been; there were considerable ulcerations of her nose, both externally and internally, and a similar affection of her cheeks, occupying one half of the right one, and about one fourth of the other, nor did her upper lip entirely escape. The sores were tolerably deep and white at the bottom, with edges that were turned up and hard; the inflammation around them extended to some distance, and was of a bright scarlet colour, attended with such excruciating pain as to deprive her almost entirely of rest. Her state was so deplorable that we were both apprehensive she would lose the greater part of her nose, nor could we form any opinion to what extent the ravages in other parts would proceed. A few of the sores had healed without any application whatever, but were

succeeded by others, so that the complaint had considerably increased of late. She was ordered to dress the parts affected morning and evening with lint moistened with sweet oil, and to take eight drops of Fowler's mineral solution three times a day, in a little water. This treatment produced an immediate and rapid improvement in her situation, and was persisted in six weeks, when she became entirely well. Two years have now elapsed since the cure was effected, without the least return of the disease; nor have any ill consequences followed the long continued use of the medicine.

Yours, &c.

J. C. OTTO.

Philadelphia, July 21, 1804.

History of a Case of Tetanus, in which large Quantities of the Tincture of Cantharides were ineffectually employed. By JOHN REDMAN COXE, M. D.

ELIJAH DUNN, aged fourteen years, was admitted on the seventh of June of the present year, into the Pennsylvania hospital, for an injury just received by a fall from a horse. A wound on the inner side of the right tibia, nearly two-thirds the length of the limb, and of considerable depth, together with one, on the outer ankle of the left leg, but little more than skin deep, formed the extent of the accident. Both wounds were dressed with futures and adhesive plaisters, to favour union by the first intention.---No fever or inflammation supervened; and the pain, considering the extent of the injury, was moderate. As he was bound in his bowels, on the ninth he took an ounce of Glauber's salts, which operated plentifully. The wounds were examined on the thirteenth, but no union was observed, and the discharge was profuse, but not purulent.

On the fourteenth one drachm of bark with ten drops of elix. vitriol. were ordered to be taken three times a day; and the wounds were dressed morning and evening with poultices sprinkled with laudanum: by the seventeenth, the wounds assumed a more healthy appearance, granulations began to rise, but were soft and rather of a pallid hue, the discharge was thin and white, and a cicatrix had commenced. At this time he observed a difficulty of moving his lower jaw, but gave no information of it until the eighteenth, when the bark and vitriol were omitted, and one grain of opium was ordered three times a day, with a quart of white wine in the twenty-four hours. The disease seemed stationary till the twentieth, at which time he opened his mouth with difficulty, and complained of stiffness of the muscles of the neck and abdomen, (which last were now nearly as unyielding as a board,) with slight spasms through the day. The wine appeared to exhilarate, and keep him free of that violent pain at the scrobiculus cordis, in general so severe in tetanic patients. The opium was now increased to a grain every two hours, and the wine ordered ad libitum. Spirit of turpentine was applied to the wounds, but excited no pain. It was then applied boiling hot, and even mixed with salt once or twice with scarcely a sensation of pain.---In the evening the symptoms had increased: thirty drops of tincture of cantharides were now given every hour, till he had taken four doses, when violent pains of the stomach and strangury, rendered its exhibition improper. The symptoms abated from the time this effect took place; but a tightness at the region of the stomach continuing, induced me to order a mustard poultice, with relief. Cantharides in powder were applied to the whole surface of the wounds, in hopes of exciting a more vigorous action in the languid vessels, but without effect. The pulse was increased in frequency, but diminished in force.

21st. The symptoms of strangury, &c. no sooner subsided, than the tetanic symptoms recurred, with permanent contraction of the muscles. The pulse beats one hundred and twenty, and weaker, and a degree of risus sardonius exists. The jaws were

close contracted,* and the head was drawn considerably backwards. Ordered to apply flour of mustard to the fores, and take every two hours ten drops of tr. cantharidis in a glass of wine; continue the opium every two hours, and inject at the same interval of time, thirty drops of laudanum in two ounces of wine diluted with water, up the rectum. If no effect is produced by the mustard, apply the butter of antimony to the fores.

22d. The butter of antimony was partially applied last night and repeated this morning; the pain was considerable, but the action of the vessels was so torpid, that the slough was not separated for several days. The symptoms have abated: about three pints of wine have been taken by the mouth, and in the injections, and about ʒij. of tr. of cantharides, producing a slight strangury and pain of the intestines. He had one considerable convulsion last night, after which he slept a little.

23d. Last evening had a violent convulsion. His pulse is fuller, and his face is flushed apparently from the wine taken; in swallowing his medicines, &c. he is obliged to be turned upon his belly, resting on his elbows, his head being drawn backwards considerably; and he is obliged to swallow slowly, to prevent a regurgitation of the fluid through the nostrils. He cannot now take the solid opium, I therefore ordered fifteen drops of laudanum every two hours in his wine; and as he has had no stool since the nineteenth, the wine injections were omitted for the present, and a common purging enema was administered. He passes his urine more frequently, but in smaller quantity and high coloured, with some scalding; it is however under his perfect control. The fores are tender, with a slight discharge. Continue the wine and laudanum, and increase the cantharides to thirty drops. If the strangury is not increased by the evening, apply a large blister to the region of the pubes. His food is chiefly panada, made rich with wine.

* Although his jaws were closed when awake, yet in sleep a complete relaxation of the muscles took place, the jaw falling upon the breast. But the tongue, which was perfectly still when awake, was, during sleep, in a constant state of spasmodic action, resembling the motion of the tongue of a snake. This was not however invariably the case.

24th. The rigidity of the muscles is now universal, though he suffers but little pain, except when a violent convulsion seizes him, when his cries may be heard at a considerable distance. His mouth is opened with difficulty, and he bites his tongue frequently during sleep.---Pulse one hundred and eight; he slept tolerably, the glyster operated well yesterday, and the wine injections were resumed at five P. M. He does not retain them well; I therefore ordered them in diminished doses; viz. $\frac{3}{4}$ ss. of wine and as much water, with forty drops of laudanum. About a quart of wine has been used since yesterday. The blister was applied as directed, and rose well with considerable pain, but no increase of strangury. Ordered fifty drops of tr. of cantharides, and thirty of laudanum every two hours.

25th. Butter of antimony was applied this morning over the whole extent of the fores, producing great pain of short duration; skin is generally moist, and he appears slightly better, opening his mouth wider.

26th. Half past nine. The symptoms were aggravated; about five last evening a violent convulsion seized him. He does not take as much wine as is desirable. Slight spasms attack him every five minutes; a miliary eruption has appeared, chiefly about the neck and body; pulse varied much during the day, sometimes full and slow, at others, weak and frequent. Pledgets of linen constantly wet with brandy were applied to the fores. A glass of wine was ordered every hour, and the tinctures of cantharides and opium as before. If no effect occurs by noon, give fifty drops of laudanum every hour with the wine, and fifty drops of tincture of cantharides. Increase the laudanum in the glysters to fifty drops.

By noon the increased doses were commenced, and persevered in, till he had taken about four hundred drops of laudanum and as much cantharides, and half the quantity by injection. At six P. M. a violent convulsion attacked him, lasting half an hour, and he began to grow comatose, with now, (8 P. M.) a degree of stertorous breathing, and that extreme irritability produced by laudanum, awaking if touched, in convulsions, and affected

with frequent tremors. No relaxation of the jaws ; the pulse is good. Ordered to omit all his medicines ; to apply a large blister over his head ; and if the symptoms of coma, &c. increase, give \bar{z} ss. of white vitriol and as much ipecacuanha in divided doses, to excite vomiting. Should the convulsions increase, by ten o'clock, dash over him two bucketfuls of cold water, and repeat it if serviceable, every two or three hours.

27th. 10 A. M. Blister drew well. The attendants kept him constantly awake ; and in a few hours the effects of the laudanum subsided, though he yet continues very drowsy. The jaws are still close ; but on the whole he seems better. He makes water often, but in small quantity with some scalding, and high coloured, which is all the tendency to strangury that has occurred since the first doses of cantharides. 'The tr. of cantharides was again resumed in doses of *one hundred* drops every hour, until by six P. M. he had taken *one thousand* drops, *without the slightest effect apparent*. It was therefore discontinued altogether. Wine was ordered ad libitum in the evening, and fifteen drops of oil of amber to be given every hour, augmenting each dose : he took but one dose, as he said it nearly strangled him, and would not try a second.

28th. This morning he began early the use of volatile alkali in doses of five grains every hour : three or four doses have been taken without any visible effect. He had one violent convulsion last night and two this morning, at other times remaining free of pain though quite rigid, and having frequent twitches of the muscles. 'The sores are more inflamed around the edges, with considerable pain when touched, the sensibility appearing to be perfectly morbid. During the night the urine came away involuntarily. He has now however the complete command of it. I now determined to try cold water by affusion, in which I was sanctioned by Dr. Rush, who came in at this period ; his pulse was one hundred and four and tolerably vigorous. At noon a bucketful of cold water was poured through a cullender over him as he lay in bed, on an oil cloth, and he was suffered to remain in it for two minutes, before he

was wiped : he said it felt cool and comfortable ; the rigidity of the muscles appeared to abate, and a glow of heat succeeded. The eruption noticed on the twenty-sixth, had now extended itself to the thighs. I ordered the cold water to be continued every two hours, increasing the coldness and quantity if it proved useful. These favourable symptoms continued for about half an hour ; but the disease appeared to return with redoubled violence, especially on attempting to drink, which nearly strangled him, and prevented the use of any thing but a little wine. The use of the water was suspended. At eight P. M. the pulse flagged considerably : I ordered the wine to be continued *ad libitum*, with thirty drops of laudanum every two hours ; to rub in ʒss . of strong mercurial ointment every hour into the thighs, and five grains of calomel every two hours into the gums.

29th. The laudanum last night gave him almost immediate relief, and he dozed, without spasms during the night, being awakened regularly to take his medicines. Butter of antimony was applied last evening, but only partially, as it gave him exquisite pain, and appeared to augment the spasms. The sores have a sloughy appearance ; continue to wet them with the spirits. The eruption has increased since yesterday, some being of the size of a small pin's head and filled with a whitish matter. Urine is passed without much difficulty or scalding, in larger quantity, and less coloured. A pulsation of the heart, which was first observed three or four days ago, has become very violent, and is visible at a considerable distance from him. It was remarked to be always greatly increased during his convulsions, but it is now more uniform. The pulse both here and at the wrist beats about one hundred and twelve, but is strongest in proportion at the heart. He swallows with more ease this morning, and the muscles of the back appear less rigid, as the arch formed when he is turned on his face to drink, is less than heretofore, and he now can drink slowly when lying on his back. His gums seem slightly affected by the mercury, of which he has taken about ʒss . and nearly half a pound of the ointment has been faithfully

rubbed in. As he had had no stool since the twenty-third, I ordered a common glyster, which operated once very copiously, with apparent benefit, the spasms recurring less frequently, and he can open his mouth nearly one half inch. The muscles of the body generally, are more relaxed, so as to give great hopes of a favourable issue. I prescribed thirty drops of laudanum every hour, to continue the ointment every two hours, and desired the calomel to be omitted.

At 2 P. M. there was a remission of all the symptoms, and he seemed apparently better than he had been since his first attack; his spirits were high, and he eat voraciously. Appearances continued thus favourable till about 6 P. M. when in the act of drinking, a most violent convulsion seized him, in which his body was bent nearly into the form of a semicircle backwards; the muscles of the neck were particularly affected. This convulsion lasted without any abatement for about an hour, his face becoming very livid and respiration very torpid; the pulse at the wrist being scarcely perceptible, whilst the convulsive motion of the heart was greatly augmented; and at seven o'clock death released this unfortunate victim from his accumulated sufferings.

DISSECTION.

At 10 A. M. of the thirtieth, fifteen hours after his decease, the body was opened, the muscles remaining still rigid, though several purple blotches over the body and extremities, appeared to denote the tendency to putrefaction. The abdomen was much distended from flatus in the alimentary canal. The adipose matter was very small, the foetor considerable. Of the omentum scarcely any thing remained but a thin transparent membrane. The stomach externally was sound, but internally were several small appearances of inflammation, especially near the pylorus. It contained the panada he had last taken, mixed with mucus, in amount about three-fourths of a pint. The spleen was altered slightly in its colour, being of a deeper leaden hue than natural. The liver was sound; the gall-bladder large

and distended with yellow bile, which had tinged the adjoining parts very considerably. The kidneys and ureters were found; and the bladder, containing about two ounces of urine, was contracted, and its coats thickened, especially at its fundus. No inflammation appeared in it. The thoracic viscera were found, except the heart, which appeared to be smaller than usual, and to be still under the influence of that spasmodic action which existed so powerfully in his last moments. The *carnæ columnæ* especially appeared to be in a state of strong contraction, being permanently rigid, with none of that flaccidity, which might have been expected so long after death had taken place. The blood was not in coagula, but dissolved like molasses, as in animals killed by lightning, appearing to indicate, that the whole muscular fibres of the arterial system had partaken of the general spasmodic action.

On examining the throat, &c. the œsophagus was perfectly found, but the *epiglottis and trachea were highly inflamed, especially the last, increasing in redness as we approached to the lungs.*

In the course of the disease, the patient took about 2400 drops of tincture of cantharides, about 2000 of tincture of opium, besides the quantity used in the glysters, and nearly three gallons of wine.

I do not recollect any case recorded of dissection after death from tetanus. It remains therefore to be ascertained by future observation, whether inflammation of the trachea always exists. From the neck being a part generally first affected in this disease, we might à priori judge this to be the case. One circumstance to be remarked however is, that in the above case no difficulty occurred in swallowing fluids, (except that only a small portion at a time could be taken,) which might not have been expected, considering the highly inflamed state of the adjoining parts.

As all the muscles partake of the spasmodic action of this disease, even the bladder, intestines and heart, may we not reasonably conclude, that the arteries partake in common of the same state, in a greater or less degree? Will not this state of the

arteries, account for the apparently weak and quick pulse, which is common in tetanus, and which is seldom excited to febrile action and fulness, even by the largest doses of wine and laudanum? And may we not hence also explain the great tendency to solution of the blood, which is noticed in this disease? What would be the effect of bleeding in small quantities, and gradually increasing the quantity drawn, in removing this spasmodic state? Would not a vigorous action of the vessels be thereby excited, and an inflammatory crust produced on the blood; as has been observed in some very malignant cases of fever, where the depressed pulse and dissolved blood have gradually given way to violent action and sily blood, requiring a continuance of the use of the lancet with greater freedom, to subdue this more active, though less dangerous state of fever?

Is it not probable that the strangury (except in the very first instance) was owing to the disease, and not to the medicine taken, as it was always very trifling, even under the large and repeated doses of the tincture of cantharides? And has not this medicine rather proved beneficial by the inflammation it excites in the stomach and bowels, than by its action on the urinary organs? for otherwise we must suppose the strangury from the medicine and from the disease to differ greatly in their effects upon the system.

August 1st, 1804.

An Account of the Efficacy of Sugar of Lead in curing Epilepsy. By BENJAMIN RUSH, M. D. &c. in a Letter to Dr. JOHN REDMAN COXE.

DEAR SIR,

ABOUT four years ago, Mrs. Toy of Southwark brought her son to me, a boy of ten years old, who, she said, had been afflicted for some time with epileptic fits. I prescribed for him a pill of two grains of the acetate, commonly called sugar of lead, three times a day. In a few months it perfectly cured him, and I had the pleasure of hearing a few months ago, that he has continued ever since to enjoy good health.

In the year 1802, I cured a boy of Mr. Robert E. Hobart of the same disease, by the use of the same dose of the same remedy. This boy was of a full habit. Previously to his taking the medicine, I drew eight ounces of blood from his arm, in order to increase the effect of the medicine, agreeably to the practice of Dr. Sydenham in a similar disease.

I am now administering it to a boy of Mr. Adam Stricker, aged twelve years, in a low grade of epilepsy which had affected him for some months. It has prevented a return of his fits nearly two months, and I am disposed to believe it will finally cure him.

I have used the sugar of lead in several cases of epilepsy in adults. In one of them it suspended the fits for several weeks, but I am sorry to add, in no case did it perform a cure.

The epilepsy is not singular in yielding to medicines under puberty, which have little, or no effect, in adult age. Pulmonary consumption, chronic eruptions upon the head, scrophula, the chorea sancti Viti, and several other diseases are often cured under puberty by remedies, which are ineffectual after the one-and-twentieth year of life.

Considering how often epilepsy, and other convulsive diseases make their first appearance in childhood, and under puberty, it is consoling to reflect that we are possessed of a medicine which promises to be useful in them.

Lest it should be supposed, the change which puberty makes in the system concurred in the cure of the above cases, it may not be amiss to add, that two of the subjects of them were under twelve, and the other between twelve and thirteen years of age.

I was first led to prescribe the sugar of lead in the epilepsy, by hearing that a man had been cured of it, by swallowing part of a table spoonful of white lead by mistake, instead of a table spoonful of loaf sugar.

From, dear Sir,

Yours sincerely,

BENJAMIN RUSH.

August 2, 1804.

An Account of Refuscitation in a Case of supposed Death from Yellow Fever. In a Letter from JOHN RUSH, M. D. to DR. COXE.

SIR,

IN the month of August of the year 1798, the yellow fever appeared in Marcus Hook, a small village situated on the banks of the river Delaware. The crews of the United States vessels Ganges and Retaliation, which lay along-side of the village, were at the same time attacked with this disease. Upon the first indisposition, each person was removed from the vessels and conveyed to tents fitted up for his reception, on an elevated and healthy spot of ground in the neighbourhood; where, through the humane attentions of his commander,* he was provided with every necessary that his situation required.

Out of sixty seamen, ordinary seamen, and marines, who had been sent to the tents, many had the disease mildly, some suffered severely, and four died, on the third, fifth and seventh days, with black vomiting and other symptoms of great malignity. Of the whole number, I have selected a case, which, from the rareness of its occurrence may be interesting and important.

The particular symptoms that marked the progress of the disease in this case, from the apparent cessation of life, to its complete refuscitation, I am unable to state, owing to the circumstance of the daily journal remaining in the possession of my assistant Mr. Parker, after he had retired from the United States service. What I observed at the time of my visits, which through necessity were short and few, I have correctly stated, and have no reason for doubting the truth of what is farther advanced, from the representation of Mr. Parker.

* Dale.

CASE.

James Clark, an ordinary seaman belonging to the *Ganges*, about nineteen years of age and of a hale constitution, was attacked on the seventh of September with the yellow fever. The symptoms were such as characterize the malignant forms of this disease. The force of the disease, seemed principally exerted on the arterial system, while the muscular and nervous systems, appeared to be but secondarily affected. The pulse was depressed at the commencement of the attack, but rose soon afterwards and became full and strong. Twenty-four ounces of blood, in all, were taken from his arm in the first paroxysm; during which, he was copiously purged with strong doses of calomel. On the second day, bleeding and purging were discontinued, and mercurial frictions, together with small and repeated doses of calomel were prescribed, in order to produce a salivation. This however could not be effected. The disease, notwithstanding the use of a variety of stimulants, such as brandy, ether and laudanum, arrived at the last stage, when, on the morning of the fourth day, the black vomiting began and continued until twelve o'clock at noon; at which time, it was said, he had expired. Upon paying my second visit to the tents, at four o'clock in the afternoon of the same day, I saw the body of Clark lying in a coffin and apparently lifeless. On closely examining it, I observed the pale yellow, that previously tinged the temples, nails and neck, changed to an orange-like hue, and interspersed with purplish spots resembling petechiæ: neither pulse nor heat were perceptible, nor was respiration discoverable on the mirror, which was held before the mouth. Putrefaction, however, had not taken place; the lower jaw was still flexible, and upon a more minute examination, I felt (or thought I felt,) a slight warmth about the epigastric region. With such slender, and evanescent symptoms of life, experiment indeed promised little. But something I was resolved to attempt: I therefore ordered the body to be covered with warm ashes from

64 Resuscitation in a Case of sudden Death from the Yellow Fever.

the cook's fire, and a gill of very strong brandy toddy to be poured down the throat every half hour. Being called away, I could not wait to see the effect of these remedies ; but requested Mr. Parker to continue the use of them, whilst any hope remained of their being successful. On my return at sunrise the following morning, I had the pleasure to find Clark propped up, indulging himself with soup. From Mr. Parker I learned, that about eight o'clock, after he had received a quart of brandy, he began to respire ; that the brandy was continued in the same proportion which I had prescribed, until eleven o'clock, when he was so far recovered, as to complain of the warmth of the ashes ; that he was then taken out of the coffin, and laid on straw on the ground. Port wine sangree was then substituted for brandy, and was regularly administered until day light, when he refused to take any more and called for food.

On the treatment of the above case, it may be proper to remark, that had convulsions or spasms attended the apparent dissolution, I should have hesitated in pouring a fluid down the throat ; as when death occurs in convulsions, the glottis might not be completely closed, while the muscles of the epiglottis, partaking also of the general convulsion, might retain it in an erect position : hence a fluid would pass into the lungs, as well as into the stomach, a circumstance which would prevent resuscitation. But in cases like Clark's, where muscular relaxation accompanied the apparent extinction of life, the epiglottis must necessarily be in contact with the glottis, and thereby prevent the admission of a fluid into the lungs.

If the history of the above case, should serve to prevent premature interment, and lead to the use of remedies for resuscitation in doubtful cases of death from fever, as well as from causes which induce it suddenly, it will be a high gratification, to

Your Friend,

JOHN RUSH.

PHILADELPHIA, August 17, 1804.

History of a Case of Aneurism. By PHILIP SYNG PHYSICK, M. D.

PHILADELPHIA, *August* 29, 1804.

A YOUNG gentleman from Virginia applied to me last April to undertake the treatment of an aneurism, situated at the bend of the elbow, occasioned by his having been bled in the basilic vein in October, 1801. He informed me that the bleeder at the time of the operation experienced no difficulty in stopping the blood, but that a very considerable ecchymosis formed, occasioning a livid colour of the skin about the wound and extending both above and below the elbow. The ecchymosis disappeared after a few days; but a pulsating tumor was observed directly under that part of the vein which had been punctured. This tumor gradually increased in size for six months, but afterwards the increase of the tumor, if any, was so slow as not to be observed, though the basilic vein running over it began to enlarge.

On examining the arm I found a tumor at the bend of the elbow pulsating very strongly; exactly resembling a true aneurism: there were also two tumors, one situated above, and the other immediately below this aneurismal sac, in which the particular thrill always met with in varicose aneurisms was very distinctly felt. These tumors were evidently distentions of the basilic vein, the trunk of which however for about three-fourths of an inch, where it passed over the aneurismal sac, was very little enlarged: by making pressure on the middle of this last mentioned portion of the vein, the orifice of communication between the aneurismal sac and the vein could be felt; and by applying the finger accurately over it, the flow of blood into the vein could be prevented, and the thrill, while the pressure was continued, ceased.

The case was now easily understood: the artery had no doubt been punctured by the lancet, pushed into it through the vein by the bleeder; the pulsating tumor was a sac formed in the

cellular membrane between the artery and vein, by the impulse of the arterial blood : the enlargement of this sac went on until its sides became firm and resisting, and then the blood from the sac was thrown with such force into the vein through the puncture in its lower side, as to cause it to distend very considerably, for two or three inches above and below the sac ; the intermediate portion of the vein however running over the sac being supported by it, was very little enlarged.

• As the upper portion of the vein was observed to distend very rapidly, the skin covering it being very thin and every where marked with cicatrices ; the patient apprehending a sudden rupture of the tumor, became very uneasy in his mind : the forearm was much diminished in size, and the hand was constantly cold. These circumstances together with the existence of the aneurismal sac, determined Dr. Wistar and myself to advise the operation of tying the artery above and below the sac.

I performed the operation in April, 1804 ; within a quarter of an hour after, the pulse of the artery at the wrist was distinctly perceived : in three weeks the wound was cicatrized, and the patient very soon recovered the most perfect use of his arm and hand. It seems unnecessary to describe the operation further than to mention, that after dividing the skin and cellular membrane covering the swelling by a straight incision, I dissected round the tumors, then tied the trunk of the vein above and below its enlargement, next tied the artery above and below the sac ; the parts comprehended between the ligatures were then cut out, which has enabled me to have the annexed drawing of them made. They are represented of their natural size.

Fig. 1. A A The basilic vein distended above and below the puncture.

B The cicatrix from bleeding.

D The aneurismal sac.

C C The brachial artery.

Fig. 2. A A The enlarged vein.

e Orifice of communication between the vein and aneurismal sac.

Fig 1



Fig 2





D The inside of the aneurismal sac every where incruited with bone.

E The orifice of communication between the artery and the aneurismal sac.

C C The brachial artery.

F Dotted lines representing the situation of the artery under the sac. The artery was not enlarged nor in any respect diseased.

TO DR. JOHN REDMAN COXE,

DEAR SIR,

IF you think the publication of the enclosed letter, in your Museum, will promote the interest of medical science, it is at your service.

August 23, 1804.

BENJAMIN RUSH.

PHILADELPHIA, 18th *August*, 1804.

DEAR SIR,

AGREEABLY to your request, I shall attempt to give you such information respecting the bilious remitting fever, which prevailed at Lisburn and its vicinity in the county of Cumberland, in the summer and autumn of 1803, as I can recollect, that may be worthy of note.

This village is situate upon Yellow Breeches Creek, about six miles westward of its confluence with the Susquehannah, and contains about thirty dwelling houses. In its vicinity there are two extensive marshes, connected with large mill and forge dams, abundantly stowed with materials subject to putrefaction.

Intermittents, choleras, and diarrhœas, were the prevailing forms of disease in the months of June and July: cholera infantum proved fatal to a few. A fore mouth was, I believe, almost universal.

I do not recollect any cases of a malignant nature, till toward the latter end of August, at which time the exhalations from the marshes had become extremely offensive.

As usual, this fever commenced with a chill accompanied with nausea, and most frequently a vomiting of bile. It sometimes, however, was ushered in by a diarrhœa, but most commonly the bowels were constipated. A delirium, in most cases, continued from its commencement to its termination, which, in those that were violent, was mostly on the third day. A slight yellowness of the skin appeared in a few cases that came under my notice about the termination of the inflammatory stage: I do not know that it was an indication of danger. A burning sensation in the stomach was general. The pulse was usually full, frequent, and seldom very tense. Flushing of the face, and inflammation of the eyes were sometimes among the earliest of the symptoms. Coma also occurred early in a few cases, which, notwithstanding, terminated favourably.

Few cases appeared to require copious depletion with the lancet; but in one case that I was called to, where there was apparently great prostration of the energies of life, the pulse indicating depression, the loss of a very few ounces of blood happily unlocked the system. Calomel combined with jalap and given in large doses, was the most powerful remedy in my hands. I also gave the carbonate of potash in frequent doses, I think with good success.

Often did I reflect with gratitude upon the principles which I had imbibed in this university, as they enabled me boldly to encounter, and in most cases to conquer this insidious and formidable disease.

I am very sorry that I can offer you nothing more satisfactory upon the subject. I kept notes of all the particular cases, but I have not now those notes to refer to. I also procured from intelligent persons, who were eye-witnesses, a history of several cases of the highest malignity that occurred since the year 1800. The dissolution of these, (which occurred on the third day) was preceded by black vomit, of the colour and

consistence of coffee grounds, and their skins were tinged of a deep yellow hue. A case of this kind occurred the late season, about two miles distant, which I did not see. In one case that I was particularly informed of, *buboes* made their appearance. But from what I saw myself of this fever, I was completely satisfied that it was nothing less than a fever exactly similar to that, which has so frequently made its appearance in this city, and is said to be derived from foreign sources!

If the above cases should be deemed sufficiently characteristic of true yellow fever, by an advocate for importation, I would ask him by what possible means it could be introduced? If he should plead that it was only a high grade of our common autumnal fever, I should rejoice to know how it is to be distinguished, for surely with respect to its mortality there is no difference.

With ardent desires for your health and prosperity, I conclude, and am,

Your sincerely affectionate friend.

WILLIAM BALDWIN.

BENJAMIN RUSH, M. D.

TO DR. JOHN REDMAN COXE.

PHILAD. *August* 30, 1804.

DEAR SIR,

I AM sorry it has not been in my power to comply sooner with your request for information, respecting the success attending vaccination in the medical department of the Almshouse this season; but shall now, from the few notes that I have in my possession, briefly state the general event of those cases that fell under my inspection.

My period of attendance at the house, commenced with the month of March; and at that time there were one or two cases of natural small-pox in the infirmary. We soon after this began to *vaccinate* those who had not been, as we then believed,

exposed to the variolous contagion, and those who had been thus exposed we *inoculated*. The result, was nearly as follows. Of fifty-four persons, chiefly children, forty-eight were *vaccinated*, and six *inoculated*. But unfortunately, eighteen of those who were vaccinated, having been previously exposed, by some means, to the variolous infection, took the small-pox. The variolous eruption appeared on eight of them in seven days, on three in six days, and on one in ten days after vaccination. But none of those who had completely gone through the vaccine process, during this or the last year, took the small-pox.

Upon the whole, I believe we may with confidence assert, notwithstanding any exaggerated accounts which may have been in circulation to the contrary, that nothing has occurred at the infirmary of the Alms-house, which ought in the smallest degree to lessen the public confidence in the efficacy of vaccination, in securing the system against the attacks of variolous contagion.

This statement has been drawn up very hastily, but if you conceive it can be of any service, in obviating the effects of misrepresentation, it is at your service, to make such use of as you may think proper.

I remain, very respectfully,

Your Friend,

THOMAS C. JAMES.

In addition to this important document, which must sufficiently expose the malicious falsehoods that have been so industriously propagated, respecting the success of vaccination in the Alms-house of Philadelphia; it may be proper to mention, that there is great reason to believe, some of the enemies of this invaluable blessing, among the numerous quacks with whom this metropolis, (much to its discredit,) abounds; have taken the most wicked steps to oppose its progress. One of these, (though

perhaps not capable of direct proof,) which is believed to have taken place, deserves to be noticed. It is well known that the vaccine disease is unaccompanied by any eruption but the individual pock on the part inoculated. With the view of discrediting it, children have been inoculated with the small-pock poison, under the name of the vaccine, which has subsequently broke out in an universal eruption, to the surprise and terror of the unsuspecting parent. This it may be well supposed would operate as a check upon vaccination; and reports have not been wanting of the numerous eruptions from the cow-pock. It is even believed that some children have fallen victims to such infamous proceedings. As there is no restraint upon these people, it is high time for the legislature to take such measures for the welfare of the public, as may put a stop to the great increase of quackery amongst us, by enacting severe laws against persons who shall presume to practice medicine without proper qualifications.

If, in the common arts of life, an apprenticeship of from three to seven years is deemed necessary to qualify the person to practice them, why should it be supposed the more important science of medicine can be understood by such a set of illiterate people as undertake to pursue it? Is all the previous necessary information acquired by intuition? Yet such must be the case if we imagine them qualified to take charge of the life of a patient. Many of these wretches can scarcely read or write; and others, are persons disappointed in the pursuit of the business they first set out in life with.* Hence the immense quantities of quack medicines advertised to cure every disease, which not only run away with the money, but too often with the life, of the credulous sufferer. Who would trust a physician to make him a pair of shoes, or a suit of clothes? Why then should persons of this stamp be trusted with the delicate structure of the human body? If these patent poisons are to be tolerated, let them at least be

* See a ludicrous quarrel on the subject of patent medicines, &c. between one Thomas Stokes, and Richard Lee of New-York, in the Philadelphia Gazette: in which one accuses the other of having been bred a taylor; whilst he retorts by asking his antagonist if he was not bred a carpenter, &c. &c.

made the subject of a heavy duty, by which means the public will be in some measure benefited by them.

Any communications on the subject of quackery, which may tend to overthrow this growing evil, will be received with pleasure, by the

EDITOR.

Observations on Accidents arising from Burns, Scalds, &c.

MR. KENTISH, a surgeon in England, wrote a few years ago an invaluable treatise on burns, which is not generally known throughout America; though from its excellence it certainly deserves to be. In this treatise, after combating the usual mode of treatment, by cold applications, he recommends from experience a method quite opposite. His theory is, that as the part burnt (when not actually destroyed) is in a high state of excitement from the action of the most powerful stimulus in nature, that excitement is to be gradually reduced, by the use of less powerful stimuli, till the part is brought to a healthy standard; just as when from the effect of cold a part becomes frost-bitten, its welfare depends, not on too great and sudden addition of stimulus, but on small degrees gradually applied. Hence, in reference to burns, in place of ice, venæsection, &c. he uses spirits of wine, brandy, spirits of turpentine, &c. and these heated, (even when the cuticle is detached), to bathe the part with, whilst a liniment is preparing of common yellow basilicon and spirits of turpentine. Once in twenty-four hours is sufficient to dress the sores; and it is recommended always to have the dressing ready before the old one is removed. As the action of the part diminishes, the exciting measures are to be diminished. Proof spirit or laudanum, made warm, are now sufficient: about the third day, suppuration commences, when mild applications are necessary, as the ceratum e lapide calaminari. He recommends ℥j. of flor. zinc. to ʒj. of ung. cer. alb.—Lime water and linseed oil are recommended to strengthen the skin.

The internal means depend on the intention, “to restore the unity of action of the whole system as soon as possible:” for this purpose æther, alkohol, &c. are administered within the first eight to twelve hours, wine or ale subsequently, and laudanum about the third day: this is under the idea of its being a large burn; as in smaller ones, laudanum or wine may be used more early in lieu of the powerful stimuli mentioned.

If any part is dead, a bread and milk poultice is applied during the process of sloughing, and after the slough comes away. Sometimes exciting, sometimes depressing, so as to keep up an exact balance; and a rather strict diet is recommended, instead of much strengthening food, which promotes too copious suppuration.

In confirmation of the propriety of this practice, I may add, that a few days after perusing the treatise, I burnt my finger very severely with sealing wax, whilst sealing a letter. I immediately applied the spirit of turpentine, which gave instant relief, and in five minutes no symptom of a burn remained, (except a slight crispness of the cuticle, which continued some hours,) although at first great redness of the part existed, with an apparent disposition to a blister. A few days after this, one of the members of my family scalded severely all the external part of the fingers with boiling water, producing exquisite pain and redness, and an appearance of vesication. By holding the fingers in spirit of turpentine the pain immediately subsided, and soon ceased altogether, leaving the parts perfectly well in about a quarter of an hour. Not long after this, my son playing with a kettle of boiling water, tilted it over upon his ankle and the upper part of the foot. Some time elapsed before the shoe and stocking could be removed, during which, several vesications raised: in drawing off the stocking the cuticle was detached from two or three of these. The child was in great agony, when his mother (I being from home) applied the spirit of turpentine with very great relief. When I came in, I found him still in great pain, sobbing and complaining very much. As soon as possible, I prepared some of the liniment, purposely leaving in the mean-

time the parts exposed to the air. The pain became nearly as acute as at first; but ceased almost immediately on applying the liniment, and in five minutes he was playing about the room with his brothers. He was only five years old, and nature cannot deceive at that age. In less than a week the parts were perfectly well, by the use of the liniment twice a day.

Another member of my family, soon after scalded the fingers severely, but by the timely application of the spirit of turpentine for about half an hour, all inconvenience was prevented.

On the eighteenth of February, 1804, a poor woman applied to me to see her child, who had on the sixteenth scalded its left fore arm and fingers very severely; the child had scarcely slept since the accident, owing to the violence of the pain. The neighbours had applied train oil and potatoes scraped, all the next day, together with cold water, by which the child had taken a very violent cold. I found a great part of the cuticle detached, and exposing it to the air, increased the agony of the little sufferer. In less than ten minutes after applying a pretty considerable quantity of Kentish's liniment, the pain had nearly subsided, and he soon fell into a quiet sleep. I ordered it a mixture of laudanum and tincture of cinnamon every two hours; and by applying the remedy for two or three days, the parts began to assume a healthy appearance. It was then dressed with Turner's cerate, and in about ten days a new cuticle was completely formed. A dose or two of purging medicine were given towards the close.

In March I was desired to see a child of about twelve months old, who had fallen with one hand into the hot ashes and embers. Scraped potatoes, &c. had been applied, and when I saw it some hours after, the whole of the fingers and thumb and part of the back of the hand were largely vesicated. The water was evacuated from the blisters, and the liniment applied twice a day for three or four days, when it was changed for the Turner's cerate; which in a few days restored the parts to perfect health.

So well convinced am I of the efficacy of this mode of treatment, that I now keep the liniment constantly made for domestic use, and wish strongly to recommend every family to keep it, together with the spirit of turpentine, at all times in readiness for use, in accidents arising from burns, scalds, &c.

JOHN REDMAN COXE.

*An Account of a Voyage to Batavia, in the Year 1800. By Dr.
HORSEFIELD.*

THE ship *China*, in which I acted as physician, sailed from America, December 22, 1799; she measured upwards of 1000 tons, and carried thirty-six guns. The number of persons at this time on board amounted to 158. On leaving America, a large number of our ship's crew were affected with catarrhal, pleuritic and rheumatic complaints, which had been produced by the cold and wet weather, to which we were exposed, during the preceding part of this month, in our passage down the river Delaware. Soon after entering the pure air of the ocean, and arriving in more temperate latitudes, our people speedily recovered; and during the continuance of our outward voyage, enjoyed an uncommon degree of health. Since the adoption of those salutary regulations, which have lately been recommended by the experience of several eminent navigators, a great change has taken place in the condition of seamen during long voyages. Provided the voyage is not continued beyond a certain time, (perhaps four or five months,) before refreshments may again be procured, no class of men, I believe, enjoy a greater exemption from disease. The purity of the sea air—the excellent quality of the articles of provision, and the moderation used in their enjoyment—the regularity of discipline established in all well regulated ships, which compels the men to take care of their health—and the want of opportunities of indulging in excesses, all, powerfully contribute to keep seamen healthy.

April 9, 1800, we made the island of Java; I had at this time only two men on the sick list; their complaints were slight and of a chronic nature. April 12, we entered the straits of Sunda, and the fifteenth arrived in the roads of Batavia. Among all the settlements which have ever belonged to the Dutch in the different parts of the East Indies, Batavia has always been considered the most unhealthy. It is situated on the island of Java, in the latitude of $6^{\circ} 10'$ south of the Equator. The distressing experience of the crews of many European and American ships, presented to our eyes on entering the harbour of Batavia, a gloomy prospect; our present health and vigour we soon expected to be exchanged for disease and death.

Among the causes which produce or influence the unhealthiness of this place, I shall mention those only, which presented themselves to my own observation, during the two months of our continuance here: I shall not attempt to give a complete view of the subject, the importance of which requires the observation of years, carried on under favourable circumstances, with an accurate knowledge of the language, the customs and the manners of the inhabitants.*

In a burning climate, almost under the Equator, Batavia is placed on a very extensive plain, which is scarcely elevated above the surface of the adjacent ocean. From several small rivers, slowly meandering through this plain, canals are conducted through all the principal streets of the town, which is nearly of a quadrangular form. It is surrounded by a wall; and both on the internal and external side of it, a very wide canal is conducted along its whole course. The country for many miles about Batavia is laid out into gardens and villas. From the rivers above mentioned, innumerable canals are conducted in every direction, through this extensive marshy plain, surrounding and intersecting every garden. Were these rivers constantly supplied with a sufficient quantity of water, and a gentle rapidity of

* All these circumstances occur, in the person of the author himself, who has since the period of these observations, resided in the island, and has been travelling through it, under the sanction of the Dutch government. E.

course kept up, little injury, comparatively, would probably result from their existence; but, except during the rainy season, when they are plentifully supplied from the mountains on the inland parts of Java, the water is in many places entirely stagnant. The banks and sides of these canals are likewise frequently decayed, in consequence of which extensive tracts of this marshy plain are constantly inundated. The soil is very fertile, and (while a sufficient quantity of moisture remains,) the vegetation extremely luxuriant; but as the heat of the sun evaporates the water, the vegetables perish and decay; and in many places extensive tracts of country are exhibited to the eye, consisting of nothing but immense quantities of decaying and putrefying vegetables, with exactly a sufficient degree of moisture to keep up a constant putrefaction. The atmosphere is loaded with deleterious miasmata, which sometimes manifest themselves by intolerably offensive odours. Respiration is rendered laborious, and animated nature anxiously desires a purer atmosphere.

When it is considered that Batavia is situated within a very few degrees of the line, and that the excessive rays of an almost vertical sun are uninterruptedly operating on a low extensive plain, which is supplied with an accommodated portion of moisture, and an incredible abundance of putrefying vegetables; it is not singular that much deleterious exhalation, and many pestilential diseases, should be produced by such a favourable combination of circumstances: for it is impossible for the imagination to conceive a situation more favourable to the production of "marsh miasmata," than that of Batavia. If human industry and ingenuity should be exerted in planning and constructing a laboratory, for the production of pestilential vapours, a situation exactly resembling that of Batavia and its environs would be the result.

The different seasons of the year have considerable influence upon the unhealthiness of Batavia. On this subject erroneous notions have been laid before the public. The rainy season, during the months of January, February, March and April, has

generally been represented as the most unhealthy : this is owing to an error in observation. During the rainy season the rivers and canals are plentifully supplied with water, which flows through them with considerably rapidity ; most of the lower marshy situations are entirely inundated with water, by which the existing putrefaction is either very much checked, or entirely prevented. It is true, that even during this season the heat of the sun is at certain intervals very powerful, and a certain portion of pestilential exhalation is still produced.

Persons whose condition in life renders it necessary for them to be frequently exposed to showers of rain, the poorer class of citizens, labourers, seamen, servants, &c. are now very generally affected with bilious fevers ; but these are universally allowed, by the best informed persons, to be much milder in their natures than those which occur during the other seasons.—They are very tractable and rarely fatal. The rain here acts as the exciting cause of the disease. Those persons who have it in their power to avoid exposure to the rain, the wealthier class of citizens, find the rainy seasons, comparatively, very healthy. The month of May, for obvious reasons, is generally the healthiest month of the year. In June the effect of the sun's action on the rivers and canals becomes more evident ; the quantity of water decreases, which in many places becomes stagnant. July, August and September, may with propriety be termed the pestilential months of the year. The causes of disease now exist in the highest degree---the process of putrefaction and exhalation above described, is, during these months, carried on in full vigour. The quantities of marsh miasmata now produced are not only inconceivably greater than at other times, but the diseases produced by them are much more malignant and intractable in their nature. This is the season of death and destruction, in which the hospitals and church-yards are filled. In October the unhealthiness begins to decrease, and the diseases are less malignant ; November and December are healthier than the months that preceded them, although the rainy season has not yet commenced. This at first sight may appear in-

consistent with what has hitherto been related ; but a little reflection will render the cause of it very obvious. By the continued operation of the heat of the sun, for several months, on the extensive marshes in the vicinity of Batavia, the moisture which is indispensable to the existence of putrefaction is at length evaporated ; that process is therefore checked : the source of pestilential exhalation, except at a few situations near the banks of the rivers and larger canals, is consequently destroyed, or at least very much diminished, and the diseases dependent on this exhalation, necessarily decrease in proportion to the diminution of their cause.

These remarks on the relative unhealthiness of Batavia at different seasons will be confirmed by some future observations.

The prevalence of the north-easterly winds during the months of July, August and September, according to an observation communicated to me by one of the most intelligent physicians of Batavia, has a powerful effect in rendering the place more sickly during these months. These winds convey the exhalations, produced by several very extensive marshes, situated in a direction north-east of the town, immediately into it and the adjacent country, and thereby greatly contribute to increase the source of disease.

The months which preceded our arrival at Batavia, January, February and March, in consequence of some unaccountable irregularity in the seasons, were uncommonly sickly. During these months the rainy season was expected ; but, instead of those copious showers, which, during this period, replenish the exhausted rivers and canals, deluge the marshes, and carry off the remaining sources of putrefaction and exhalation, the fall of rain was much less considerable than in common years. Occasional showers occurred ; but being immediately succeeded, frequently for several days, by the action of a hot sun, they contributed rather to the generation, than to the destruction of disease. Not till the latter part of the season, did the rains become more general and copious ; they continued, and, as will

be observed in the narrative of our diseases at Batavia, much to our advantage, several weeks longer than customary.

This irregularity in the seasons, and deficiency of rain, gave rise to a peculiar epidemic disease, which during the months above mentioned, prevailed universally through Batavia and its environs. It was a bilious remitting catarrhal fever, which differed from the common endemic of the climate, in being more simply of an inflammatory nature, and in affecting more particularly the pulmonary system; it was likewise a more tractable disease than the common remitting fever, and yielded almost universally to moderate depleting remedies, especially to purges and mild emetics and sudorifics, if applied in the early stage of the disease.

This epidemic prevailed particularly among the lower class of the Chinese inhabitants of Batavia. These people are very much addicted to the use of heating and highly stimulating medicines in the treatment of all diseases. At its first appearance they administered indiscriminately their favourite remedies; in consequence of which, the disease proved to them extremely fatal, and five to six hundred Chinese perished on an average, in one week. They were finally compelled to desert their own physicians, and apply to the Dutch; when, under the use of cooling and depleting remedies, almost all recovered.

Besides the primary causes of the unhealthiness of Batavia above enumerated, there are others arising from a reprehensible negligence in the police of that city, in removing or obviating those additional sources of disease, which are within their power.

1. All the filth and putrescent matters of various kinds which are collected in the streets of the city and neighbourhood; among which the chief are---dead bodies of animals of every description, are thrown, without reserve, into the canals at all seasons, and during their dissolution, produce highly injurious and offensive exhalations."

2. When an attempt is made to clean the canals, the mud and filth which they contain, are thrown out, on the sides of

the banks, where they remain, until by evaporation, they are rendered sufficiently solid to be laden in boats and carried away.

3. A third source of disease affects particularly those vessels lying in the vicinity of the shore. Those incalculable masses of filth of every description, which are conveyed into the open bay which forms the harbour of Batavia, by the canals and rivers, after their mixture with the sea, especially during calm weather when it is not agitated by healthful breezes, remain for a considerable time nearly in a state of stagnation in shallow water ; they of course produce a peculiar exhalation, increasing that already existing from so many other sources.*

Unfavourable as the situation of Batavia is to health and life ; and numerous, almost universal and uncontrollable as the causes are of its unhealthiness ; it still, in a great degree, admits of improvement, and yields to human industry and ingenuity. It has already been remarked that the grounds towards the north-east of the city are most fertile in the production of injurious exhalations : yet, even many gardens situated in this district, but particularly many of those that are situated south or south-west of Batavia, have been, of late, rendered much more wholesome by numerous expedients, which were principally suggested by Dr. Ducos, one of the best informed and most respectable physicians of Batavia. These consisted chiefly in the removal of immense quantities of filth and putrid substances, which had accumulated in the course of many years ; in draining and evaporating many marshy places ; in repairing the banks and sides of the canals and rivers, and in directing and confining them to one unlimited course. The difference in the degree of healthiness, in the different gardens and country residences, dependant on these circumstances, is extremely striking : in the same season, while one of them shall be entirely exempt from disease, in another, every inhabitant, without exception, shall be affected by

* I frequently observed the water, drawn for various purposes, from alongside of ships, above two miles from the shore, to be impregnated with a highly offensive odour.

the remitting fever. A remarkable instance occurred during our continuance at Batavia. The captain, and two of the supercargoes of the ship *China*, and three other American gentlemen, for the sake of retirement, hired a country house for their private use; this, although at the time not known to them, was in a situation notoriously unhealthy; to this they retired every night and slept in it. Within the course of one month, every one of these six gentlemen was attacked by the bilious remitting fever: two died, two narrowly escaped death, and the remaining two had fevers of very considerable violence and malignity, while of those American gentlemen, who retired every evening to the garden of the keeper of the public hotel, a considerable proportion escaped the bilious fever.

I shall close these cursory remarks on the climate and situation of Batavia with two observations.

1. The Chinese who annually emigrate from China to Batavia, are as liable to the diseases of the country as the Europeans or Americans.

2. The Malays and Javanese who are born and dwell from from their infancy in the vicinity of Batavia, are but rarely affected with violent cases of bilious fevers. They are very subject to a common disease of the country, which will be mentioned hereafter, and which is owing to the same causes as the bilious fevers; to swelled and sore legs and ankles. They are a feeble, lazy, short-lived race: by their indolence they avoid many of the exciting causes of diseases, but they rarely arrive at the age of forty years.

A TABLE

Of the comparative Temperature of the Air and of the Water of the Ocean, as indicated by Farenheit's Thermometer, at 12 o'clock at Noon, in a Voyage from Philadelphia to Batavia. By Mr. THOMAS RODMAN.

1803		Thermometer		Latitude	Longitude
		Air	Water		
October	6	72	°	38 ° 6 north	72 ° west
	7	66	74	37 1	69
	8	76	72	35 44	67
	10	74	76	34 45	66
	11	76		36 7	65 50
	12	76	76	36	65 40
	13	79	74	37 6	64 26
	14	80	76	37 10	61 28
	16	79	76	35 37	57 28
	18	80	75	34 22	50 19
	20	78	76	32 53	44 20
	21	80	76	33 7	43 14
	22	80	75	32 38	39 59
	24	79	77	30 47	37 46
	26	74	77	27 34	34 5
	27	77	77	24 58	32 50
	29	80	80	24 27	32 17
	30	80	79	23 27	31 9
	31	82	80	22 58	30 23
November	1	82	80	22 10	29 5
	2	79	80	21 18	28 47
	3	82	80	19 46	28 8
	4	80	79	17 30	27 17
	5	83	82	15 27	26 37
	7	83	82	11 51	24 52
	9	84	83	10 20	24 18
	10	86	84	8 40	23 33
	11	86	84	6 51	22 49

1803	Thermometer		Latitude	Longitude
	Air	Water		
November	12	86°	84°	5° 45' north 22° 39' west
	13	86	83	4 35 22 26
	14	86	83	4 3 23 10
	15	82	78	3 34 23 34
	16	84	81	2 57 23 59
	18	84	81	1 42 25 36
	19	84		1 13 26 36
	20	84	80	0 14 27 55
	21	83	79	1 10 south 29 9
	22	84	80	3 9 30 21
	23	84	80	5 14 30 27
	24	84	80	7 6 30 44
	25	84	81	9 12 30 32
	26	84	80	11 9 30 32
	27	84	80	13 23 30 32
	30	82	79	20 25 28 33
December	1	84	79	21 40 27 58
	2	83	79	22 19 27 48
	3	83	79	23 54 27 6
	4	82	75	25 35 26 6
	8	73	71	28 47 23 7
	9	74	69	30 16 21 2
	10	71	67	31 31 17 20
	11	71	67	31 37 15 50
	12	67	64	33 1 15 5
	17	64		35 30 5 7
	18	59	58	35 55 1 38
	19	58	58	36 30 1 50 east
	20	59	57	37 8 5 12
	22	62	58	37 42 10
	23	60	59	38 2 12 36
	24	62	58	38 11 14 44
	25	60	63	38 1 16 4
	30	74	70	38 57 24 40

1804		Thermometer		Latitude	Longitude
		Air	Water		
January	1	64	62	39 20 south	28 12 east
	2	66	64	39 37	28 46
	3	66	64	40 1	30 50
	4	67	65	39 1	32 4

Mean Temperature of the Air by 66 Observations—76 7

Mean Temperature of the Water by 62 Observations—74 5

The experiments were not continued to the end of the voyage. As so much leisure must necessarily occur in so long a voyage, it might considerably diminish its tediousness, if gentlemen would keep an accurate set of meteorological observations, on the thermometer, barometer, hygrometer, wind and weather; interspersed with remarks which may occur to them, and observations on the magnetic variations, &c. in different latitudes and longitudes. As the thermometer already is found to serve a useful purpose in indicating an approach to soundings, it is not improbable, that accurate observations may aid considerably the progress of navigation.—*Editor.*

MEDICAL AND PHILOSOPHICAL REGISTER.

FOREIGN AND DOMESTIC.

Medical Graduation in the University of Pennsylvania.

AT a public commencement, held on the 6th of June 1804, in the University of Pennsylvania, the following gentlemen, were admitted to the degree of doctor of medicine, having respectively presented, and defended their inaugural dissertations, annexed to their names.

1. John Rush, of Philadelphia. On the causes of sudden death, and the means of preventing it.
2. Stubbins Ffirth, of Philadelphia. On malignant fever, with an attempt to prove its non-contagious nature.
3. William Shaw, of Philadelphia. On the autumnal epidemic fever, which prevailed in Philadelphia in the year 1803.
4. Phineas Jenks, of Pennsylvania. On the analogy of the Asiatic and African plague, and the American yellow fever, &c.
5. Elijah Griffiths, of Philadelphia. On the ophthalmia.
6. William Darlington, of Pennsylvania. On the mutual influence of habits and disease.
7. Peter Miller, of Philadelphia. On the means of lessening the pains of parturition.
8. Edwin A. Atlee, of Pennsylvania. On the influence of music in the cure of diseases.
9. James Archer, of Maryland. On the effects, and modus

- operandi of the carbonates of lime, magnesia, and potash; in the cure of general and local diseases.
10. James Cocke, of Virginia. On the extensive inflammation, which attacks wounded cavities and their contents.
 11. John Hoskins, of Virginia. On that form of disease nosologically called Dysentery.
 12. John H. Camp, of Virginia. On the use of mercury in fevers.
 13. Austin Brockenbrough, jun. of Virginia. A botanico chemical essay on two native species of laurus.
 14. John Parker, of North Carolina. On fractures of the leg.
 15. Whitmell H. Pugh, of North Carolina. On the supposed powers of nature in the cure of diseases.
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AT a meeting of the college of Physicians, held on Tuesday, the 3d of July, the following persons were chosen officers for the ensuing year.

President—Dr. John Redman.

Vice President—Dr. William Shippen.

Censors—Dr. Caspar Wistar,
Dr. Samuel Duffield,
Dr. Thomas Parke,
Dr. Samuel Powell Griffiths.

Treasurer—Dr. Benjamin Say.

Secretary—Dr. Thomas T. Hewson.

AMERICAN PHILOSOPHICAL SOCIETY.

AT a stated meeting of "The American Philosophical Society held at Philadelphia for promoting useful Knowledge," on the 20th of July, 1804, the following persons were duly elected members:

Le Baron Alexandre de Humboldt, of the Royal Academy of Prussia.

Joseph Willard, D. D. President of Harvard College, Massachusetts,

William Short, of Virginia.

Zaccheus Collins, of Philadelphia.

The thanks of the society are presented to the following persons, for the *communications* and *donations* prefixed to their respective names.

COMMUNICATIONS.

Meteorological observations made at Loyalsock, Lycoming, 1803. Richard Ecroyd.

On the Mississippi and its Delta, also, Meteorological Observations made at the Natchez, 1801-2-3. William Dunbar, Esq.

On the fascination of serpents. Dr. Hugh Williamson.

Observations on some fossil bones, &c. William Lewis, Esq. of Virginia.

Facts and observations relative to the turkey. Dr. B. S. Barton.

Account of the discharge of two worms from a child's ear; with the worms preserved in spirits. Dr. Hosack and Mr. Gillespie, of New York.

Observations on gypsum as a manure, also on the climate of Virginia, in a letter to Dr. Barton, from R. P. Barton, Esq.

Account of the Magotty-Bay bean or cassia chamæcrista, as a manure, in a letter to Dr. Barton, from P. Cuthis, Esq.

Some account of the amelioration of climate in Massachusetts, from James Winthrop to F. Nichols.

Demonstration of a theorem proposed by Simson. Mr. Joseph Clay.

FOR THE CABINET.

1. A fine Italian marble bust of Franklin, executed at Florence. J. R. Smith, Esq.

2. A profile of Dr. Priestley. Mr. Robert Patterson.

3. A profile cast of Lavoisier. Dr. J. R. Coxe,

4. A specimen of curious moss from Montgomery county. J. B. Smith, Esq.

FOR THE LIBRARY.

Transactions of the Royal Society of St. Petersburg, 13th volume. The Society.

Transactions of the National Institute, 4th vol. in three parts, 4to. Camus's memoir on the voyages of De Bry and Thevenot, 4to. The Institute.

Flora Batava, ninth, tenth, eleventh and twelfth numbers. The Batavian Council of the Interior.

Collection of maxims and advice to intendants, &c. &c. Don Val. de Foronda.

Warren's address on Vaccination. Account of Margate sea-bathing Infirmary. Account of the Literary Fund Society. Dr. Glas's and Dr. Barry's annual Sermons before the Royal Humane Society. Plan of the receiving-house of the Royal Humane Society at Hyde Park. Account of Goldsmith's last illness by Dr. Hawes. The above from Dr. William Hawes, treasurer to the R. H. Society.

Lathrop's discourse before the Society for propagating the Gospel. Thatcher's funeral Discourse on the death of Samuel Adams. Rev. John Elliot, Boston.

The Constitutionalist. William Barton.

Rev. Dr. Smith's works, vol. 1st and 2d. Hugh Maxwell, publisher.

Carver's travels. Ramfay's oration on the cession of Louisiana. Dr. Barton.

Brief Retrospect of the 18th century, 2 vols. 8vo. by the Rev. Samuel Miller, D. D. The author.

Kramner's Dutch and German Dictionary. Michael Hillegas, Esq.

The inaugural dissertations, of the gentlemen who graduated in June last, have likewise been received, either from the authors, or the professors.

Philad. July 26, 1804.

J. VAUGHAN, Librarian.

PROGRESS OF IMPROVEMENT AT NATCHEZ.

By a pamphlet lately published, we learn, that in October, 1803, an association was formed at Natchez, under the title of

“The Mississippi Society for the Acquirement and Dissemination of useful Knowledge.” They have framed a Constitution, and enacted bye-laws for their government; and the Legislature of the Mississippi Territory, in November last, passed an act of incorporation in their favour. It is declared to be a public act, and is so liberal as to have no limitation either of time for which it shall continue, or of property which it may hold. The present officers of this society are,

ISAAC BRIGGS, *President*,

WILLIAM C. C. CLAIBOURNE, } *Vice Presidents*,
WILLIAM DUNBAR, }

JOHN HENDERSON, *Treasurer*,

LEWIS KERR, *Secretary*.

There are between thirty and forty regular members; and the society has chosen the following gentlemen corresponding members; viz. Samuel L. Mitchill, James Madison, Robert R. Livingston, William Lattimore, Thomas Moore, Henry Tooley, John Sibley, and Silas Dinsmore.

THE FINE ARTS.

Mr. Peale is now preparing for the public eye, a number of statues, of the full size, from the antique, such as the Apollo de Belvidere, the fighting and dying Gladiators, the Antinous, &c. We are indebted for these casts to the taste and liberality of Mr. Smith, the brother of William Smith, Esq. of Carolina, who deposite them with Mr. Peale, until they become part of an American Academy of the fine arts. To every lover of these it must be extremely gratifying to know, that several of our citizens, noted for taste, are active in the commencement and foundation of such an Academy, which, under peculiarly favourable circumstances, may render Philadelphia the centre of the arts in our western hemisphere. We are informed by Mr. Rembrandt Peale that this is the sentiment of our celebrated countryman Benjamin West, who has expressed an opinion, of the probability of his coming to assist in this laudable plan, ere he ends his days, in his native state.

A TABLE

Of the Diseases in the Philadelphia Dispensary, for four Months.

Diseases.	December, 1803.	January, 1804.	February.	March.	Total.	Cured.	Died.	Relieved.	Removed.	Irregular.	Event unknown.
Abortus	1				1	1					
Abcessus		1	1	2	4	3				1	
Ambustio		5	1	2	8	6	1				1
Amenorrhœa		3		1	4	4					
Anasarca		1			1						1
Aneurisma cordis	1				1		1				
Apoplexia				1	1		1				
Afcites		2		2	4	2	2				
Caries		1			1		1				
Catarrhus	2	11	7	13	33	32				1	
Cephalalgia	2			1	3	3					
Cholera		1	1	2	4	3					1
Colica			1		1	1					
Constipatio		1	3	5	9	9					
Contusio	2	1	1	2	6	6					
Cynanche maligna		1			1	1					
trachealis	2				2	1				1	
Dentitio			1	1	2	2					
Diarrhœa	3	5	3	2	13	11	2				
Dolores		3	1	4	8	6					2
Dyspepsia	1	1			2	2					
Dyspnœa		1	1		2						2
Eruptio	1	6		1	8	8					
Erysipelas				2	2	2					
Febricula	6	2			8	8					
Febris ephemera			2		2	1					1
hectica			1		1		1				
synocha				1	1	1					
remittens	1				1	1					
biliosa				1	1	1					
bil. maligna			1	1	2	2					
Fistula in ano	1	1	1		3	1			1		1
Fractura	2		1		3	3					
Gestationis morb.		2			2	1		1			
Gonorrhœa	3	3	4	1	11	11					
Hæmorrhagia uteri	1				1	1					
Hæmorrhoids	1				1	1					
Hepatitis	1				1						1
Hernia humoralis	1			1	2	1			1		
Herpes	1				1	1					
Carried over	33	52	31	46	162	137	9	1	2	3	10

Table continued.

Diseases	December, 1803.	January, 1804.	February	March.	Total.	Cured.	Died.	Relieved.	Removed.	Irregular.	Event unknown.
Brought forward	33	52	31	46	162	137	9	1	2	3	10
Hydrothorax		3	2		5	1	2				2
Hysteria	1	1		1	3	2					1
Leucophlegmatia		1			1	1					
Leucorrhœa	1	3		1	5	4		1			
Lienteria	1				1	1					
Lumbago			1	1	2	2					
Mania	1				1				1		
Menorrhagia				2	2	2					
Morsus canis	1				1	1					
Nephritis	1	1			2	2					
Ophthalmia	4	2	1	3	10	9					1
Paralysis				2	2	2					
Parturitio	1	1		1	3	3					
Peripneumonia	2				2	2					
Pernio			2		2	2					
Perpiratio sup.		1	1		2	2					
Phthisis	1	3		1	5	3		1		1	
Pneumonia	7	11	5	11	34	26	1		2		5
Podagra	1				1						1
Prolapsus ani				1	1	1					
Pfora			1	7	8	8					
Rheumatismus	9	5	5	9	28	24		4			
Schirrus ventriculi	1				1		1				
Stranguria				1	1	1					
Syphilis	11	18	18	17	64	59		1	3		1
Tenesmus		3	1	1	5	5					
Variola				3	3	3					
inferta				2	2	2					
Vaccina		5	3	10	18	10					*8
Vermes	2	9	8	4	23	22	1				
Vertigo			1		1	1					
Vulnus		2		6	8	5			2		1
Ulcus	4	5	6	3	18	12				1	5
Not noted	6	22	39	18	85						85
Total	88	148	125	151	512	355	14	8	10	5	120

* Failed.

Extract of a Letter from a Gentleman in London to his Correspondent in this City, dated May 31st. 1804.

“LITTLE of novelty has occurred in our medical literature. Mr. Astley Cooper (lecturer on surgery) has published a splendid work in imperial folio, on the subject of herniæ, illustrated with engravings. A translation is just announced, from the French, of Dr. P. Assalini, of “Observations on the Plague, the Dysentery, the Ophthalmia of Egypt, and on the means of prevention, with remarks on the Yellow Fever of Cadiz,” with a plan of a hospital for receiving patients afflicted with *contagious and epidemic diseases*. Galvanism has excited no small degree of public curiosity; in consequence of which Mr. Wilkinson (a surgeon, who has recently published two volumes of elements of Galvanism) has *galvanized* the purses of the curious, by his popular lectures on that phenomenon, in various parts of London. Vaccine inoculation is the order of the day, and is, (in the metropolis at least) almost generally adopted, though not with universal satisfaction. I have seen a few cutaneous eruptions, consequent on the cow-pox; but, from what causes these arose, I have not had an opportunity to ascertain. There is now in the press a pamphlet, the professed object of which is, to prove vaccine inoculation not to be a preventive of small-pox, by a detail of particular cases.

“Some weeks since, a caution was addressed to the public, on the subject of WORM MEDICINES, by a Mr. Clayton, printer, of Hull in Yorkshire. He stated, that he had two children, to whom (being troubled with worms) he administered “*Ching’s Worm Lozenges*.” One of them died shortly after, but his decease was attributed to the worms, with which he had long been afflicted. Within a very short period, the elder survivor became dangerously ill, *a complete salivation ensued*; the whole mass of blood was changed. Medical aid was now procured, but too late to relieve the child, who died in great agony, within a few hours. On dissection, *a large portion of mercury was*

found in the intestines. A coroner's jury was assembled, who, together with the surgeon, gave this verdict: "*Died by mercurial poison, administered in the form of Ching's lozenges,*" (such is the substance if not the identical words of the verdict.) The proprietor of this quack medicine, when applied to, persevered in obstinate silence, and at length actually declined to give any explanation whatsoever to the sorrowing parent. Here the matter now rests."

It is to be hoped a knowledge of this fact may check in some measure the propensity of the inhabitants of the United States, to use those medicines whose composition is altogether unknown, except to the proprietor. Do we not daily see our apothecaries and others, advertising "Solomon's Cordial Balm of Gilead"--- "Anti-impetigines"---"Hamilton's worm-destroying lozenges, "Elixir and Grand Restorative," with many more too numerous to mention; by whose extraordinary virtues we might reasonably expect every avenue to death would by this time have been closed. But is this the case? Has not every physician to lament occasionally the irreparable loss of time which has been sustained, by the use of those compounds, before application for aid, which might probably have proved beneficial? These remedies are taken, either from the recommendation and *judgment* of some friend, or from a firm reliance on the truth of those positive assurances which are daily promulgated through our newspapers. If the proprietors of these remedies were alive to any thing but their own interest, they could not have the impudence to assert the many falsehoods which must be apparent to every medical man.

E.

Dr. Edward Harrison has lately published an inquiry into the rot in sheep, and other animals: he attributes it to the poisonous effluvia which, under certain circumstances, are emitted from marshy soils. He recommends *drainage* as the only certain preventive.

Demmenie has noticed that the solution of copal may easily be effected by exposing it to the vapours of alkohol, or oil of turpentine. For that purpose an alembic may be filled one-fourth with either of these fluids, and some pieces of copal suffered to be suspended by threads in it, over the surface of the fluid. After having made the alkohol, or oil of turpentine, boil, the copal becomes liquefied, and is dissolved. This is the best method of preparing copal varnish. *Month. Mag.*

Large quantities of the sulphat of magnesia have been discovered in a saline state, in caves, in Munro county, Virginia. In one of these caves, the bones of the megalonyx* were found. An account of this discovery was communicated, together with specimens of the salt, to the American Philosophical Society.

Letter to the Editor of the Lancaster Journal. Bedford, Pennsylvania, December 20, 1803.

SIR,

Very valuable mineral springs have lately been discovered in the vicinity of this place, which, from the extraordinary cures they have effected during the last summer, are beginning to excite very general attention. There are three in number, all issuing out of Dunning's mountain, about one mile and a quarter south of this town;—and they are now known by the names of the *Yellow Spring*, the *Sulphur Spring*, and the *Moss Spring*.

The first or *Yellow Spring*, (so called from the yellow tinge it gives to the substances it passes over,) is considered the most valuable and salutary, and is the only one that has yet been used for medical purposes. It is a bold beautiful stream, bursting

* Megalonyx—or Great-Claw—see an account of the bones, presented to the the society by Thomas Jefferson, Esq. in the 4th vol. of the Transactions, p. 246.

from the side of the mountain, about three or four perches from Shover's Run beneath, and about fifteen feet above the level of the run. It is exceedingly limpid, of a mild temperature, (though not quite so warm as the Berkley waters in Virginia,) and much lighter than common water. It has a peculiar taste, not unlike an infusion of tartar,—to some not agreeable, but generally esteemed by those who have drank of it, by no means unpleasant. From the observation of some men of science, and from a few experiments lately made on the water, it is supposed to be more highly impregnated with foreign principles, and with a greater variety of them, than any spring yet discovered in this country. Of the four classes of mineral waters generally known, it unites the quality of at least *three* of them, viz. The *Saline*, the *Sulphurous* and the *Martial*—but of the sulphur it is only lightly tinctured.

The water may be drank in great quantities with great ease and safety,—and its usual effects on people in *health*, are those of an immediate and powerful *diuretic*, a gentle *cathartic*, with a considerable increase of *perspiration*. Only a few diseased persons have as yet made use of the water ; but in every instance where used, they have been salutary, and in some they have effected perfect and rapid cures. In one case particularly, a violent and alarming gravel, in a few weeks was totally removed ;---another person, affected with a severe and excruciating rheumatic affection, together with a general debility, was entirely relieved ;--and many others variously afflicted, have been much benefited by only using the water occasionally at their own houses, some miles distant from the fountain.

The *Sulphur* Spring rises in the bottom of Shover's Run, about one hundred and fifty yards below the Yellow Spring, and is very strongly impregnated ;---but besides *sulphur*, there is some *other* quality mixed with it, which, at certain times, gives it a beautiful *red* colour :--When in a glass, it appears as if currant juice had been plentifully poured into it : at other times, it is only *blue*.

The *Moss Spring* discharges itself immediately into the Run about one hundred yards above the Yellow Spring,---and is a singular curiosity.

A large rock, about eight feet in diameter, projects over the Run:---To the under part of the rock is attached a beautiful thick green moss, from which, throughout the whole breadth of the rock, there falls a continual and rapid shower of pure limpid water, distilled from the rock.

When this crystal shower is viewed in the sunshine, nothing can be more brilliant.---Whether this water has any medical properties, is not yet known; but it is peculiarly sweet and pleasant, and may be made a very convenient shower-bath.

Besides these *three*, there is another spring remarkably *cold*, issuing out of the same bank, a few perches above the Sulphur Spring. It is a fine bold stream, rushing out of a cave, in the margin of Shover's Run, and may be appropriated to valuable purposes.

The opposite bank affords convenient and pleasant situations for the buildings and accommodations contemplated. The romantic valley between is about one hundred and fifty yards wide; it, and the adjoining ridges, abound with a great variety of *game*, which, together with the fine *trout* that may at any time be caught in Shover's Run, will be a continual source of agreeable exercise and amusement to those who may frequent the waters.*

* The editor requests gentlemen, who have it in their power, (especially of the medical profession, to favour him with accurate accounts of any mineral waters in their neighbourhood, together with their analysis.—A complete history of this department of medical science is yet a desideratum in the United States.—Accounts of those which at present rank high in the estimation of the public, will be particularly acceptable.—Such as the Saratoga and Ball's Town springs of New-York.—Those of Schooley's Mountain in New-Jersey.—The York-Town and Yellow Springs of Pennsylvania.—The Bath and Sweet Springs of Virginia.—The Catawba of North Carolina, and many others which are not at present known or recollected by the editor.

Dr. De Carro, in a letter to the editors of the Bibliothèque Britannique, dated Vienna, March 27, 1804, giving an account of the success of vaccination in the East, states, "that it is now practised every where from Cape Comorin to Delhi."

He adds, that he had succeeded in transmitting to Dr. Milne, physician to the English factory at Bassora, the vaccine infection on lint; the matter *still moist*, at the end of November, though the packet was despatched from Vienna in the beginning of August.

Tilloch.

The experience of several of our physicians has long been in favour of the vaccine scab. Some have thought they were more successful with it, than with even fresh infection. At all events, its use completely overturns the idea of the necessity of taking the infection at one particular period;---for, if it is efficacious in its last stage as a scab, it follows, that it cannot be less so in any preceding state. If this were merely a curious fact in the history of the disease, it would not be requisite to lay so much stress upon it; but, as it involves in a considerable degree the possibility of preserving this invaluable prophylactic, its knowledge cannot be too greatly diffused.---During the month of February last, I succeeded in exciting the genuine disease with a scab, which had been taken early in May of the preceding year. At the time of employing it, it was two hundred and ninety-five days, or nearly nine months and three weeks old. This is almost two weeks longer than Dr. Valentin, who succeeded with infection preserved in the usual way between glass, of nine months and eight days old. These two facts prove, (especially as no extraordinary care was taken in the preservation of either the scab or the infection,) that all that has been written of the success of different methods of securing the infection, is not to be depended on as always sure, and that as in the above instances, it depended on accident, and perhaps an uncommon susceptibility at the time to the disease.---The same remarks will apply to the above-mentioned fact by Dr. De

Carro.—One thing I think is certain, that if every practitioner will preserve a portion of infection in each case under his care, and, especially, if he secures the genuine, (primary) scab, we never shall lose this invaluable blessing.---It is time also for people to reflect, that this disease is equally mild at all seasons of the year, and, that as the small-pox is almost uniformly in our city, it is of great consequence to secure their infants from its attack, without waiting for those periods to which they have been accustomed in the small-pox.---I lately vaccinated in the Pennsylvania Hospital an infant only three days old, who went through the disease in the most easy manner,---and on the twelfth day, I tested her with small-pock virus without effect,---so that by the time the mother was able to leave the lying-in-ward, her child was also secured against the ravages of this enemy to mankind. E.

At the Vaccine-Pock Institution, Golden Square, in the month of June of the present year, a number of subjects who had undergone vaccination in the year 1800, were submitted to the variolous test, under circumstances the most favourable for exciting the small-pox.---Some also who had been vaccinated by Dr. Pearson early in 1799, have likewise been tested, but with the result that might be expected in favour of vaccination.

Tilloch.

It appears that vaccination is now fully established throughout all the British presidencies in India.

Dr. Jenner has received from Dr. Sacco, of Milan, positive proof of the validity of his opinion, that the vaccine owes its origin to the grease of the horse.* A coach-horse of Dr. S. having the grease, communicated several pustules to the hands of the coachman who attended to the fore, having all the cha-

* This proof is of the strongest kind, as Dr. Sacco not only doubted Dr. Jenner's opinion on this point, but imagined he possessed facts to overthrow it completely.

characteristic marks of those derived from the cow:---another coachman soon after was affected in a similar way;---from whose pustules Dr. S. inoculated nine children and a cow. Three of the children were infected, having the disease exactly as if it had been communicated from the cow.---The matter from these children was successful in others;---and at the time the account was transmitted, it had reproduced itself correctly a fourth time. Dr. S. has inoculated six other children with the matter of grease, on two of whom it succeeded with all the genuine characters of the vaccine.---A plate of the disease in the foot of the horse is intended to be given by Dr. Sacco.

Med. & Phys. Jour.

By a very extraordinary coincidence, the prophylactic power of the vaccine, was discovered in South America, about the same period, in which it was promulgated in England by Dr. Jenner, according to information I received from the learned and interesting Baron Humboldt whilst he remained in Philadelphia.---It was not, however, communicated by inoculation from one person to another. E.

Mr. Schrader, apothecary at Berlin, has made the interesting discovery, that the Prussic acid is contained in the aqua lauro-cerasi, and the distilled water from the flowers of the peach tree, as likewise in the infusion of bitter almonds.---He was led to this discovery by observing, that the Prussic acid has the quality common with those distilled waters and infusions, of killing animals; and, that the Prussic acid, as well as the above-mentioned water, possesses the smell of bitter almonds.

This discovery is likely to be very advantageous to medicine as well as to the arts; and the author thinks it probable, that what is hitherto called the narcotic principle may be nothing but the Prussic acid: and, in order to prove this conjecture, he intends making experiments with opium, hyosciamus, belladonna, and the other narcotics.

Med. & Phys. Journal.

Dr. Schaub has discovered a new method of obtaining Prussic acid in a state of absolute purity. The process consists in pouring upon one part of Prussian blue, half as much sulphuric acid, diluted with an equal quantity of water, and subsequent distillation. The Prussic acid passes over in alcohol; its odour greatly resembles the water of the lauro-cerasus. It is a deadly poison to animals.

Ibid.

The new metal which has been announced to the public under the name of *Palladium*, is found to be a composition of two parts of platina and one of mercury.

Ibid.

Mr. Hunter of Dumbarton, in order to encourage the more general use of a valuable remedy, gives an account of a lump of acetite of lead, weighing not less than a pound, which was accidentally cut up, by an old short-sighted woman, with cabbage, for dinner, and which was entirely eaten by the master, mistress, a daughter, her husband, and two apprentices.---An emetic was given to five of them which operated well; but the sixth, one of the apprentices, as he felt nothing uneasy about him refused to take any thing;---yet he never had the smallest complaint, and was as regular in his bowels as before.

Ibid.

Dr. Richardson of Rippon, in the Philosophical Transactions, volume 11th. article 22. has given a curious and accurate detail of the aphid, puceron, or vine-fretter, in which he speaks of the friends and enemies of that race, which ejects from the rectum, the substance called honey dew. Among the friends of the aphid Dr. R. reckons the ant and the bee. The ant is a constant visitor, the bee only when flowers are scarce. The ant, he adds, will suck in the delicious nectar, while the aphides are in the act of discharging it from the anus, but the bees only collect it from the leaves on which it has fallen.

Whilst observing this curious insect on the vine, I noticed the ants running about them with considerable diligence; at times suddenly stopping, and as quickly renewing their progress: up-

on examining them with a magnifier, I observed the ant when he stopped, apply his fore-legs or his antennæ with great velocity over the aphid, who almost immediately elevated his rump, and propelled a minute drop of this honey dew; this was instantly seized upon and swallowed by the ant, who immediately quitted his station to hunt out another, fit for emitting his food. It appeared altogether a degree of instinct in the ant, by which he discovered, which, of a great number of aphides was prepared to emit it; for he continued running amongst them, till one was found fit for his purpose, when the same *tickling* was renewed, till the emission took place: by these means the lank body of the ant soon plumped up, and others succeeded to him, to renew their depredations on the aphid, who did not seem disturbed by the process.

E.

Dr. Ackermann, of Mentz, has made several galvanic experiments on the body of a beheaded person a quarter of an hour after decapitation. The battery which he used consisted of one hundred strata of zinc and copper plates. A small sponge, moistened with a solution of ammonia, and connected with the hydrogen pole, being introduced into the intestinum rectum, another sponge was laid on the wound of the neck, and the head placed above it, into the right ear of which a small sponge had been put, tied to a wire, whose end was held in the hand. On touching the oxygen pole of the battery, all the muscles of the body were thrown into violent convulsions, the spine lifting itself and bending repeatedly; both arms forcing themselves out of the hands of the assistant were forcibly drawn towards the body: the muscles of the face were likewise convulsed, and the masticatories opened and closed the jaws with gnashing of the teeth. In the experiments which were made on the body alone, the muscles of the extremities were much convulsed, and in those made on the head only, the eye-balls were violently rolled within their cavities. All these contractions continued above an hour; and even when the body had received the temperature of the atmosphere, slight contractions could be perceived.

Med. & Phys. Journal,

Dr. Desfontaines of St. Germain, read at the medical society of Paris, an account of an extraordinary disease followed by death, occasioned by an insect found *living* in the substance of the liver : upon dissection, “ towards the middle of the concave surface of the great lobe was perceived a kind of cavity six or seven lines in diameter, and four or five in depth, filled with a black thick humour, and out of which came an insect yet alive ; it was a worm of an extraordinary kind, and resembling no way those which practitioners have described as hepatic worms. It was four inches long, and of the thickness of a silk worm of the largest size ; its colour was of a brownish red, and its body was articulated in the form of rings ; each was marked by a white spot, in the middle of which was implanted a hair of a resisting nature, and extremely sharp, and which, seen through a lens, resembled the quills of a porcupine ; the head of the insect was armed with a kind of proboscis also articulated ; the inferior extremity was terminated by a large flat tail, similar to that of a crab.”

Ibid.

Dr. Deiman, of Amsterdam, employed the fur-oxygenated muriatic acid mixed with oil as one of the best external remedies in scabies and other cutaneous diseases, and he succeeded in curing a very obstinate species of scabies with a liniment, in which sixty drops of the acid were added to one ounce of oil. He used it with equal success in tinea capitis, and herpetic complaints of the most obstinate kind. Dr. Binkman of the same place, praises likewise this combination, but in tinea capitis he advises to add more acid. The oil is mixed with the acid, by shaking it in a glass vessel, which is well closed. No more than one ounce ought to be prepared at once. The vessel, in which the liniment is preserved, must be put in a dark place, and be shaken before it is applied.

Ibid.

Mr. Ring strongly recommends the following preparation of burnt sponge in the cure of bronchocele.

R. Spong. ust. ℥ij.---pulv. g. arab. ℥ij.

Pulv. cinnam. ʒss.---syrup. simp. q. s. ut ft. trochis. xxiv.

One to be taken two or three times a day. No more syrup is to be added than is absolutely necessary: it is to be added slowly, and beat well. The troches are to be dried before a fire on a plate slightly oiled, and are to be kept in a bottle for use.

Mr. Ring, without pretending to determine how this medicine acts, asserts "that he has cured a considerable number of persons of the bronchocele by this remedy, some of whom began to suffer much, and to be seriously alarmed, on account of the difficulty of deglutition and respiration, with which their complaints were at that time attended."

This medicine has been long used in this disorder, yet without any great success. Mr. Ring thinks it proceeds from the difference of the quantity, or of the mode, in which it is given.

From the very high character given of it, it must be considered as highly worthy the attention of practitioners; and we would particularly recommend it to the physicians on the Mohawk river, and at Pittsburgh, where this disease prevails so greatly, to ascertain more completely the estimation in which it should be held.

Mr. Ring says the dose is one scruple of the sponge in each troche; yet it is evidently two scruples, as there are twenty-four scruples in each ounce.

This medicine has been likewise highly extolled by Dr. Erdman, in all sorts of glandular diseases: his prescription is as follows—R. spong. ust. ʒss. sacch. alb. ʒi ss. m. f. pulv. s.; a tea-spoonful to be taken dry early in the morning and evening.

From a theory adopted by Dr. Erdman, he was led to employ the spongia usta in hooping cough. The disease diminished by degrees and was entirely removed by the sole use of that remedy, except in cases where an hectic fever had already taken place.

It is said to be an almost infallible remedy in chronic hoarseness, particularly when caused by a catarrhus matter, which is deposited on the glandules of the larynx and trachea.

In metastases on the glands, occasioned by the measles and the scarlet fever, it was found very serviceable.

In the rickets also, it was used with advantage, combined with different aromata, cortex cinnamomi, aurant. caryophyll. &c.

Obstinate cardialgies are, in some cases, supposed by Dr Erdman, owing to obstruction or schirrus of the pancreas; conformably to which idea the spong. ust. was given with great success, in doses of a scruple or half a drachm daily. Several cases of the most inveterate cardialgy were cured by it, which had resisted the whole series of antispasmodic remedies. The doctor adds that no ill consequence arose from its application.

Ibid.

Dr. Moodie of Bath has used, with the greatest success, the *aqua kali puri* (*olim lixivium saponarium*), in the case of a woman who had been bitten by a viper, and who was apparently in a dying condition. A tea-spoonful was at first administered in water, every three or four hours, and afterwards every six hours: she was relieved immediately after the first dose, and in four days was perfectly restored to health. The doctor further observes, that when persons are bitten by animals whose venom is highly deleterious, the progress of the disorder may be stopped, and the person saved, by the speedy administration of the *lixivium saponarium*. Hence also, if any of the strong mineral acids should fall on any part of the body, the immediate application of this substance will prevent them from doing any further mischief. Or, if a person should accidentally swallow any of the mineral acids, or hydrargyrus muriatus, or any other corroding salt, which an alkali will decompose, a speedy exhibition of a solution of the alkaline salts, in proper doses, affords the most likely means of relief, and of preventing fatal effects.

Month. Mag.

*Abstract of the Population of Great Britain.**

County.	Houses.		Persons.		Occupations.		Total of persons.
	Inhabited.	By how many families occupied.	Males.	Females.	Persons chiefly employed in agriculture.	Persons in trade, manufactures or handicraft.	
Bedford	11,888	13,980	30,523	32,870	18,766	13,816	63,393
Berks	20,573	23,416	52,821	56,394	58,155	16,921	109,215
Buckingham	20,443	23,384	52,094	55,350	25,083	21,380	107,444
Cambridge	16,139	19,262	44,081	45,265	28,054	11,988	89,349
Chester	34,482	37,613	92,759	98,992	38,823	67,447	191,751
Cornwal	32,906	39,040	89,868	98,401	42,687	24,870	188,269
Cumberland	21,573	25,893	54,377	62,853	21,062	18,387	117,230
Derby	31,822	33,660	79,401	81,746	31,743	39,516	161,142
Devon	57,955	72,559	157,240	185,761	96,208	60,844	343,001
Dorset	21,437	24,142	53,667	61,652	28,204	22,259	115,319
Durham	27,195	38,109	74,770	85,591	18,217	25,208	160,361
Effex	38,371	46,784	111,356	115,081	65,174	25,283	226,437
Gloucester	46,457	55,133	117,180	133,629	49,420	49,645	250,809
Hereford	17,003	18,822	43,955	45,236	31,261	8,558	89,191
Hertford	17,681	20,092	48,063	49,514	20,611	12,861	97,577
Huntingdon	6,841	8,150	18,521	19,047	9,536	4,484	37,568
Kent	51,585	65,967	151,374	156,250	54,124	43,253	307,624
Lancaster	114,270	132,147	322,356	350,375	52,018	269,259	672,731
Leicester	25,992	27,967	63,943	66,138	23,823	42,036	130,081
Lincoln	41,395	42,629	102,445	106,112	60,584	24,263	208,557
Middlesex	77,712	130,722	240,958	294,371	13,078	89,499	535,329
London and Westminster }	112,912	199,854	373,655	444,474	13,417	162,260	818,129
Monmouth	8,948	9,903	22,173	23,409	12,871	5,540	45,582
Norfolk	47,617	57,930	129,842	143,529	61,791	38,181	273,371
Northampton	26,665	29,361	63,417	68,340	29,303	31,426	131,757
Northumberland	26,518	35,503	73,357	83,744	23,190	25,738	157,101
Nottingham	25,611	30,081	68,558	71,792	23,904	35,513	140,350
Oxford	20,599	23,750	53,786	55,834	33,109	16,346	109,620
Rutland	3,274	3,563	7,978	8,378	3,995	1,923	16,356
Salop	31,182	34,501	82,563	85,076	45,046	35,335	167,639
Somerfet	48,048	57,013	126,927	146,823	61,434	54,053	273,750

* In the original Tables are given the houses, persons and their occupations, in each parish, township, or extra-parochial place of the county. The total of each county is alone introduced here. The remainder will be given as it is received.

NEW PUBLICATIONS.

MR. Astley Cooper has lately presented to the world, one of the most splendid surgical works that has ever been published. The work is a large imperial folio, entitled "The Anatomy and Surgical Treatment of Inguinal and Congenital Hernia" and is illustrated with eleven plates judiciously selected and elegantly and correctly executed.

In the eleventh chapter, which is devoted to the treatment of a mortified intestine, we find among other valuable and interesting matter the following observations.

"When the whole cylinder of the intestine is mortified, it is necessary to proceed very differently. Then the mortified part of the intestine should be cut away, and the ends are to be brought in contact and confined by means of four ligatures.

"As far as a judgment can be formed from experiments made upon animals, it will be seen that this operation is in them both safe and effectual; for I have made the experiment of dividing the intestine and afterwards sewing its extremities together, and was pleased to find it succeed." The following experiments are then related. "Experiment 1st. The abdomen of a dog being opened, one of the small intestines was divided; a cylinder of isinglass was then introduced into the bowel, and three sutures were made upon it: one at the part at which it joins with the mesentery, and the other two on each side of the intestine. In three days the animal had regular stools. On the sixteenth day he was killed, and the united portion of the intestine was shown to the students.

"Experiment 2d. It appeared in the foregoing experiment that the animal derived no advantage from the cylinder of isinglass, as it became shut by the contraction of the intestine. I therefore divided the intestine of another dog, and sewed it with three threads, without including the isinglass. On the second day the dog took food, on the third appeared playful, on the fifth I pulled the ligatures away; after which he suffered nothing from the experiment."

“ In both these experiments the intestine was returned into the abdomen, where it rested against the wound in the parietes ; and the ligatures were left hanging externally. But my friend Mr. Thomson, lecturer in surgery at Edinburgh, made these experiments in a different manner, and their result is so curious as to deserve attention.

“ Experiment 1st. Assisted by his friends Drs. Farre and Jones, he divided the intestine of a dog. The cut edges were sewn together, first by an interrupted suture going round the cylinder of the intestine, and then four other stitches were introduced at nearly equal distances from each other. The ligatures being cut close to the intestine he returned it into the abdomen, and sewed the external incision. No swelling or tension succeeded. The dog was killed on the tenth day. On opening the abdomen he found a portion of intestine, thickened and more vascular than usual, adhering to the parietes at the site of the external wound ; on flitting this up he could see distinctly on the inside, but not on the out, the place at which the intestine had been divided. Three of the ligatures had disappeared, but the place of their former attachment could be distinctly seen on the inner and thickened surface of the wound. Two of the threads still remained adhering to the side of the wound. Pleased to find that the ligatures had passed from the outer to the inner side of the intestine, and that they had been discharged by stool, he determined to repeat the experiment and to give a longer time to learn the result of it more completely.

“ Experiment 2d. In a full grown dog the first experiment was repeated, five stitches only being put in the intestine. The dog was killed at the end of six weeks. On opening the abdomen he could see no distinct mark of division in the intestinal canal ; but upon cutting out a piece and inverting it, he found two stitches still adhering to its inner side. He could also perceive, as in the former case, but less distinctly, the marks made by the stitches which had disappeared.

“ It appears then by these experiments, that in the animals which were the subjects of them, not only the intestine may be returned into the cavity of the abdomen, but the ligatures which are applied upon it; and that no apprehension need be entertained of these ligatures being separated into the cavity to produce the inflammatory effect of extraneous bodies. However, as the protruded parts in hernia are so much inflamed as to endanger a speedy separation of the ligatures; and, as it appears by the first experiments which I have related, that the animal did not suffer from the ligature hanging from the abdomen; I should still prefer performing the operation of uniting the divided intestine, in such a manner as to give an opportunity of extracting the ligatures, if any inconveniences arose from their application.

“ The practice, therefore, which ought to be followed in an intestine divided by mortification, is to cut off its mortified extremities, and then to pass four stitches through them, one at the mesentery, and the three others at equal distances round the intestine. Then returning it to the mouth of the hernial sac, which should be opened higher up than usual, it must be there firmly confined by a ligature being passed through the mesentery, in the manner already directed. If stools pass the ligatures, and the patient goes on well, the ligatures may remain until they are thrown off by ulceration; but if there are no stools, and the patient suffers from a distended abdomen, three of the stitches should be cut away, leaving that which attaches the intestine to the hernial sac, as well as that which joins its edges at the mesentery. The fæces can then readily escape at the external wound; and as granulations arise, and the wound heals, the mouths of the divided intestine will become united, so that the fæces will take their natural course, as they did in the case which I have related, where many inches of the intestine sloughed.”

Mr. Cooper next speaks of the difficulty of managing an intestine with “ a large opening in its side, occupying one-half

of its cylinder," and has the following observations on the treatment of it. "The means which will occur to the mind, as being most likely to effect this object," (the healing of the opening) "will probably be to make an uninterrupted future upon the opening in the intestine; but this treatment would leave the intestine with only half its cylinder, the fæces will not pass, they will either soon burst the stitches from the wound, or it will become necessary for the surgeon to cut them to unload the intestine, and prevent the death of his patient.

"There is a curious difference in the facility with which a longitudinal and transverse wound of the intestine unite. It has been already shewn, that the transverse heal readily; but with respect to the longitudinal, they have a contrary tendency. Mr. Thomson made the following experiments, the result of which will be found extremely curious.

"Exper. 1. Exposing the intestine of a dog, he made an incision into it of an inch and an half in length, in a line opposite to, and parallel with the mesentery. The cut edges were brought together by four stitches, which were cut away close to the knots by which they were tied, and the intestine was returned into the belly.

"The dog became uneasy in the evening and continued so the next day. The belly became tense, and he shewed an aversion to food; and in less than forty-eight hours he died.

"Upon opening the abdomen strong marks of peritoneal inflammation were apparent, and a quantity of fluid was found consisting in part of exudation from the inflamed surface, and in part of the contents of the intestinal canal. The edges of the wound were torn open. One of the stitches had disappeared, but the three others remained, each adhering to one side of the wound.

"Exper. 2. He repeated the foregoing experiment, and, to prevent the escape of the fæces, sewed up the intestines between the interrupted stitches with a fine thread. This dog, like the former, soon became uneasy and restless, the belly became

tense, and he died in less than forty-eight hours from the experiment. The appearances, upon opening the abdomen, were the same as in the former experiment."

"Experiment 3d. Saturday January 14th, I made a longitudinal incision of one inch and a half into the small intestine of a dog, and then having sewed the edges of the wound together with great care by an uninterrupted suture, I cut off the ligature close to the intestine, and returned it into the abdomen. In twenty-four hours after this experiment the animal was so ill as to make his recovery doubtful; but in forty-eight hours he was much better, and able to take food. From that time he recovered quickly, running about the house, and taking whatever was offered to him. On the seventh day I killed him, and found, upon examining the abdomen, the intestines glued together so as to prevent my seeing the ligature upon the outer side of the intestine; but upon cutting them open, I found the thread loosely adhering to the edges of the wound, but the knot which I had made upon the outside was hanging on the inner side of the bowel. The intestine was uninflamed upon its internal surface, and the lacteals were loaded with chyle. Although this animal did not die from the experiment, it was certainly in greater danger, and suffered more, than in that in which the intestine was divided, and it requires much greater care to perfectly close the longitudinal wound than is necessary in the transverse.

"These experiments greatly assist in elucidating the treatment of the mortified intestine in hernia. Instead of endeavouring to maintain a diminished canal by sewing the intestine longitudinally, the surgeon should not only cut out the mortified part, but all the remaining part of the cylinder of the intestine, and then approximating the extremities of the intestine, he should endeavour to unite it in the manner in which a transverse division of the intestine is treated, by making four sutures upon it, and confining it by means of the mesentery to the mouth of the hernial sac."

THE AMERICAN PHILOSOPHICAL SOCIETY have lately published the First Part of their Sixth Volume.—The Table of Contents will afford some idea of the importance of this valuable addition to their former Volumes.*

* 1. AN Account of the Language of Signs, among certain North American Indians. By William Dunbar, Esq. of Natchez on the Mississippi; Member of the Society: communicated by Thomas Jefferson, President of the Society.—2. Meteorological Observations for one entire Year, ending the 31st of January 1800, made by William Dunbar, Esq. at the Forest, four and a half miles East of the Mississippi, in Lat. $31^{\circ} 28' N.$ and Long. $91^{\circ} 30' W.$ of Greenwich; on an Eminence about 150 Feet above the Level of the highest Waters of the annual Inundation of the Mississippi. Communicated by the President of the Society.—3. Description of a singular Phenomenon seen at Baton Rouge, by William Dunbar, Esq. Communicated by the President of the Society.—4. A short and easy Rule for finding the Equation for the Change of the Sun's Declination, when equal Altitudes are used to regulate a Clock or other Time-Keeper. By Andrew Ellicott, Esq. Communicated by the Author.—5. Account of an extraordinary Flight of Meteors (commonly called shooting Stars). Communicated by Andrew Ellicott, Esq. as extracted from his Journal, in a Voyage from New-Orleans to Philadelphia.—6. An improved Method of projecting and measuring plane Angles. By R. Patterson. Communicated by Andrew Ellicott, Esq.—7. Sur la Theorie des Vents. Par M. Dupont de Nemours.—8. Extracts of a Letter from William Dunbar, Esq. of the Natchez, to the President of the Society; relating to fossil bones found in Louisiana, and to Lunar Rainbows observed West of the Mississippi.—9. Meteorological Observations, made by William Dunbar, Esq. at the Forest four Miles West of the Mississippi, in Lat. $31^{\circ} 28' N.$ and Long. $91^{\circ} 30' W.$ of Greenwich, for the Year 1800—with Remarks on the State of the Weather, Vegetation, &c. calculated to give some Idea of the Climate of that Country.—10. Abstract of a Communication from Mr. Martin Duralde, relative to fossil Bones, &c. found in the Country of Apelousas, West of the Mississippi—to William Dunbar, Esq. of the Natchez, and by him transmitted to the Society.—11. Observations made on a Lunar Eclipse, at the Observatory in the City of Philadelphia, on the 21st of September 1801; by R. Patterson and A. Ellicott.—12. On the Hybernation of Swallows; by the late Colonel Antes. Communicated by Dr. Barton.—13. Astronomical Observations made at Lancaster, Pennsylvania, chiefly with a View to ascertain the Longitude of that Borough, and as a Test of the Accuracy with which the Longitude may be found by Lunar Observation; in a Letter from A. Ellicott to R. Patterson.—14. Notices of the Natural History of the northerly Parts of Louisiana; in a Letter from Dr. John Watkins to Dr. Barton.—15. On two Species of Spheæ, inhabiting Virginia and Pennsylvania, and probably extending through the United States. By Benjamin H. Latrobe.—16. Memorandum of a new Vegetable Muscipula. By Dr. Barton.—17. On the Claying of Sugar; describing a new and economical Mode of conducting that Process. By Jonathan Williams, Esq.—18. An Account of some newly discovered Islands and Shoals in the Indian Seas. By Mr. Thomas, an Officer on board the American Ship Ganges.—19. First Report of Benjamin H. Latrobe, to the American Philosophical Society, in Answer to the enquiry, "whether any, and what Improvements have been made in the Construction of Steam-Engines, in America?"—20. An Account of the Fusion of Strontites, and Volatilization of Platinum; and also of a new Arrangement of Apparatus. Communicated by Robert Hare, jun. a Member of the Society.—21. An Account and Description of a Cock with two Perforations, contrived to obviate the necessity of a Vent-Peg, in tapping air-tight Casks. By Robert Hare, jun.—22. Some Account of a new Species of North American Lizard. By Dr. Barton.—23. Continuation of Astronomical Observations, made at Lancaster, Pennsylvania; in a Letter from A. Ellicott, Esq. to R. Patterson.—24. Observations and Experiments relating to equivocal, or spontaneous Generation. By J. Priestley, L. L. D. F. R. S.—25. Observations on the Discovery of Nitre in common Salt, which had been frequently mixed with Snow; in a Letter to Dr. Wistar, from J. Priestley, L. L. D. F. R. S.—26. A Letter on the supposed Fortifications of the Western Country; from Bishop Madison of Virginia, to Dr. Barton.—27. Supplement to the Account of the Dipus Americanus, in the IV Vol. of the Transactions of the Society, No. XII. By Dr. Barton.—28. Hints on the Etymology of certain English Words, and on their Affinity to Words in the Languages of different European, Asiatic,

AN ENQUIRY into the Effects of Ardent Spirits, &c. &c.---
By Benjamin Rush, &c. &c.---Philadelphia---Dobson---pp. 50.

This greatly enlarged edition is divided into three parts.

Part I. treats of the effects of ardent spirits, as they appear in a fit of drunkenness, &c. &c. &c.

The destructive effects of ardent spirits upon the human mind are thus enumerated.

“A more affecting spectacle cannot be exhibited than a person into whom this infernal spirit, generated by habits of intemperance, has entered. It is more or less affecting according to the station the person fills in a family, or in society, who is possessed by it. Is he a husband? How deep the anguish which rends the bosom of his wife! Is she a wife? Who can measure the shame and aversion which she excites in her husband? Is he the father, or is she the mother of a family of children? See their averted looks from their parent, and their blushing looks at each other! Is he a magistrate? Or has he been chosen to fill a high and respectable station in the councils of his country? What humiliating fears of corruption in the administration of the laws, and of the subversion of public order and happiness, appear in the countenances of all who see him! Is he a minister of the gospel?---Here language fails me.---If angels weep,---it is at such a sight.”

In Part II. we are presented with the “Substitutes for ardent spirits,” &c.* Their use, combined with bitters, to prevent

and American (Indian) Nations; in a Letter from Dr. Barton to Dr. Thomas Beddoes.—29. Astronomical Observations, made by Jose Joaquin de Ferrer, chiefly for the Purpose of determining the geographical Position of various Places in the United States, and other Parts of North America. Communicated by the Author.—30. Description of the River Mississippi and its Delta, with that of the adjacent Parts of Louisiana; by William Dunbar, Esq. of the Natchez. Communicated by the Author, through the President of the Society.—31. Abstract of Meteorological Observations for the Years 1801, 1802, and 1803, made at the Natchez; by William Dunbar, Esq.—Proceedings of the Society on the death of their late eminent Associate, Joseph Priestly, L. L. D. F. R. S.

* It is greatly to be lamented, that the duties upon ardent spirits have been taken off by the Legislature of the Union. In place of encouraging the immorality, which the improper use of ardent spirits has invariably led to, it has always been the policy of the most enlightened governments, to check it as much as possible by the heaviest duties; and even these have been found inadequate to the purpose. Whilst our rulers do not discountenance, by every means in their power, this pernicious habit; it is to be feared but little benefit will result from the philanthropic views of the author of this pamphlet.

the intermitting fever, is shewn to be both dangerous and uncertain. A teaspoonful of the bark is recommended as a much better security taken in the morning during the sickly season.— This part of the Inquiry, is closed by some excellent remarks on the effects of ardent spirits “upon the population and welfare of our country, and the means of obviating them.”

The third part treats of “The remedies for a fit of drunkenness,” and of “such as are proper to prevent its recurrence, and to destroy a desire for ardent spirits.”

The author, in his concluding section, observes, “It has been said, that the disuse of spirits should be gradual, but my observations authorize me to say, that persons who have been addicted to them, should abstain from them *suddenly*, and *entirely*. ‘Taste not,---handle not,---touch not;’ should be inscribed upon every vessel that contains spirits in the house of a man, who wishes to be cured of the habits of intemperance.”---In this excellent little moral tract it is difficult to select where all is worthy of attention.

The Scale, called the Moral and Physical Thermometer, is omitted in this Edition.

AN INAUGURAL DISSERTATION on Malignant Fever; with an attempt to prove its non-contagious nature from reason, observation, and experiment :---&c. &c. &c. by Stubbins Ffirth, S. H. S. M. P. a native of Salem, New-Jersey, House Surgeon to the Philadelphia Dispensary, &c.*---Graves---1804, 8vo. pp. 60.

This work commences with “a chronological history of the malignant fever of North America,” taken from a variety of sources.---“An account of the weather and diseases preceding the epidemic of 1802, and of its rise, progress and termination,” occupies upwards of fourteen pages, which will not well admit of an abstract.---A “description of the disease” follows.

* It might have been more generally intelligible, if this gentleman had informed us in plain English (as his associates of the medical class have mostly done) that he is an honorary member of the Philadelphia Medical Society.— We perceive also, that a change has taken place in the title of *Apothecary* of the Dispensary to *House Surgeon*.

The author next proceeds to the "method of cure," in which, among other remedies, enemata are strongly recommended every hour or two,---"a strong infusion of tobacco has generally been preferred," and it is added, that he "never knew it fail." Having seen, however, several instances in which this powerful remedy certainly produced a prejudicial effect, I must object to its too frequent use,---and at all times recommend the greatest caution.---We are not informed of the strength employed by the author.

A remedy, of late years much recommended in the plague, is highly spoken of by the author, viz. frictions with warm olive oil. From experience he speaks of it as particularly adapted to the disease in its forming state, or in the latter part of the first, and commencement of the second stage. It is said, that if it "be rubbed, when warm, all over the body of the patient, and he be then wrapped in warm blankets, a most copious sweat will ensue, his pulse will be reduced in force and frequency, and the heat of the body lessened several degrees," and it is hence supposed to be one of the best auxiliaries to the lancet. This remedy has been adopted in the West Indies†. We should apprehend it is one, not adapted to the purses of the poor.

Notice is taken of a new method of cure pursued by the physicians of Saint Domingo, extracted from the first number of the "*Journal des Officiers de santé de Saint Domingue*." This consists in rubbing the body all over with fresh lime or lemon juice. Dr. Victor Bally relates a case of its successful employment in the most aggravated form of the disease.

† A Danish physician, of the name of Keutsch, has adopted in the Danish West-India islands, the practice of friction with oil, for the cure of fever incidental to that climate, in the same manner as pointed out by Mr. Baldwin, with respect to the plague in Egypt. Letters from Copenhagen state, that Dr. Keutsch had adopted this practice in the case of eight soldiers afflicted with the fever, six of whom were completely cured by friction with oil, in the course of twenty-four hours. The way in which it operates is by producing profuse perspiration, and generally vomiting. Dr. Keutsch, in some cases, rendered the operation of the oil still more efficacious, by adding to it camphor.

Next in order, the author gives us the appearances on dissection, which are here subjoined.

“The brain was generally found in a diseased state, the meninges being considerably inflamed, the dura mater being sometimes agglutinated to the pia mater, in consequence of the increased action of the arteries thereof, the blood vessels were turgid with blood, appearing as though they had been injected, the substance of the brain was harder and firmer than usual, the ventricles frequently contained water, sometimes to the amount of several ounces; in some cases the rupture of a small vessel had taken place, and an effusion of blood was found between the pia and dura mater.

“The lungs in general were found of a darker colour than natural, much gorged with blood, which would not coagulate, adhesions to the pleura were common and evident marks of preceding inflammation.

“The pericardium was occasionally found inflamed, sometimes containing several ounces of water, and in some instances covered completely by an inflammatory exudation of the thickness of several lines.

“The heart was found evidently to have experienced its share of morbid excitement. In the right auricle, the coagulable lymph has been found separated from the other parts of the blood, in a clot by itself, and of a yellowish colour; the ventricle of the same side I generally found full of dark grumous blood, seldom in a state of coagulation. In the left auricle I have sometimes found the blood coagulated, when fluid in the other parts of the heart. The left ventricle I have found filled with dark grumous blood, not coagulable, but in a number of cases it was entirely empty. The substance of the heart has been found inflamed, the coronary vessels uncommonly turgid, and the whole exterior surface covered by an inflammatory exudation. The *columna carnea* I have seen more tender and easily torn than usual, and in fine appearing as though they had been uncommonly stimulated, thereby losing all the affinity of cohesion, as occurs in persons killed by lightning.

“ The state of the aorta and large arterial vessels were found different from that in most other diseases, being filled with black fluid and grumous blood, whereas in general they are found empty.

“ The stomach was *always* found diseased; great inflammation being observable throughout, and erosions of the villous coat frequent, nay, in a number of cases whole portions thereof, of the size of a dollar, were detached and found floating in the black vomit. The blood vessels were in general very much distended, and in one case their smaller extremities filled with a fluid similar to the black vomit in appearance, taste and smell.

“ This inflammation was frequently continued to the small intestines, the duodenum was the most affected, but the jejunum and ilium also suffered a part, nay the large intestines by no means escaped free; for I have often found them very considerably inflamed; in many instances discoloured spots were observable on various parts of the alimentary canal, sometimes sphacelus had extended for several inches on them; the spleen and pancreas were generally found in a healthy state; the kidneys were also in general found sound, but the bladder was in a number of cases inflamed, and in some so contracted, that the cavity would not hold four ounces.

“ The liver was generally, I might say almost always, found in a healthy and natural state; for I do not find amongst my papers on the subject, an account of its having been diseased but in *three* patients that I examined, and in *two* of them it had been of a chronic nature; in the other the inflammation was recent. The gall-bladder was always found in a healthy state, containing its usual quantity of bile and of a natural colour. I have preserved specimens of black vomit and bile taken from the same patient, showing the difference, which is obvious from first sight. From every circumstance I feel myself authorised to, and I do positively assert, that black vomit is *not* an altered secretion of the liver, is *not* changed bile, and does *not* come from the liver, whatever others may assert to the contrary, and this I would prove by the following circumstances.

“First: It is never found in the gall-bladder, the hepatic, the cystic, or the ductus colidochus communis.

“Secondly: The bile is found natural in the gall-bladder; when the stomach is distended with black vomit.

“Thirdly: I have found the stomach distended with black vomit, when the pylorus valve completely obstructed all passage from the duodenum to the stomach, or *vice versa*, at the same time the liver was perfectly free from disease, and the bile in the gall-bladder natural in colour, taste, and consistence.

“Fourthly: I have seen the arteries of the stomach distended with a fluid similar to black vomit, and not to be distinguished from it by any means whatever; a portion of the villous coat of the stomach separated from its adhesion to the others, and the space filled with black vomit poured forth by the termination of the small arteries.

“Fifthly: Very acrid and violent poisons, producing great inflammatory action in the vessels of the stomach, have induced them to take on the same action that occurs in yellow or malignant fever, and to secrete black vomit while the liver remained in a sound and healthy state.

“Sixthly: In the most violent cases of hepatitis, we never see black vomit; the patient is never affected in the same manner as when the arteries of the stomach have taken on the action necessary to enable them to secrete and pour out this fluid.

“Seventhly: In yellow fever the stomach is always, the liver scarcely ever, found in a diseased state.

From every circumstance, therefore, I am led, nay I am forced to believe, that the black vomit is a morbid secretion from the arteries of the stomach, in consequence of great inflammation; that it is not confined exclusively to yellow fever, but occurs from other causes, as swallowing large doses of arsenic, opium, or any other very powerful incitant in such quantities as to produce this necessary degree of action.”

The dissections are followed by a “description of the black vomit” which is ejected in the third or last stages of malignant

fevers; to which the author appears to have paid considerable attention. Our author differs from those who regard the black vomit as of different kinds; after his description of it, he informs us that two other discharges from the stomach have been called black vomit, the distinction between which he endeavours to fix. The first a thick and tough phlegm or mucus; the other, blood effused in the stomach and duodenum, by the rupture of some vessel.

An analysis of the black vomit, founded on experiment, follows its description; from which the author infers, that it consists of, "the phosphoric and frequently the muriatic acids, lime, soda, resin; water composed of hydrogen and oxygen; azote, a colouring matter, or unctuous animal substance; sulphurated hydrogen gas, probably a saccharine substance; the phosphoric acid combined with soda and lime, forming phosphate of soda and of lime." This analysis differs in several points from that of Dr. Cathrall.

"An attempt to prove the non-contagious nature of malignant fever," follows next, in which it is unnecessary to pursue the author, as the facts on which he founds his opinion are too important not to be generally known.

The last division of his treatise, consists of "experiments on the black vomit," to discover its nature, properties and qualities. In these, animals fed with this matter were not affected in their health, neither did any bad effect result from its application to wounds, &c. When injected into the jugular vein of a dog, it produced death in ten minutes, but water did the same. When dropt into the eye no pain or inflammation followed. No bad effect resulted from inhaling the steam when evaporated. The extract (left from its evaporation), made into pills, and swallowed, produced no effect on the system; neither did the fluid black vomit diluted, and undiluted, even in the amount of $\frac{3}{4}$ ij.*

* This experiment, which I had an opportunity of seeing the author make, I must consider as unnecessary as it was disgusting. After the proof of its harmless nature upon animals, it required only a very strong stomach to extend it to the human subject. E.

The serum of the blood and saliva of patients labouring under malignant fever inserted beneath the cuticle produced no effect, neither did the serum, swallowed in considerable quantities.

The author concludes by attempting to shew wherein the malignant fever differs most materially from such diseases as are contagious, asserting as a fact that it is not contagious; that it is rarely infectious, that it is always an endemic, and frequently an epidemic of the United States.

DEATHS.

AT Charkof in Russia, lately died, A. F. M. Willich, M. D.—Author of Lectures on Diet and Regimen;—and of the Domestic Encyclopedia. This gentleman had been appointed to the professorship of medicine, and first government-physician at the new university of Charkof, in the Ukraine; 1000 miles south of St. Petersburg. To this place he had removed with his family a very short period before his death.

At Madagascar, the celebrated botanist, André Michaux, Author of the History of the Oaks of America.—For an account of this valuable performance, see the New York Medical Repository, vol. vi. p. 64.

NOTICE TO CORRESPONDENTS.

Dr. Hutchinson's observations on fractures of the leg, with a drawing of his splints, have been received; also Dr. G. Williamson's observations on chorea. They will appear in the next number.

An anonymous paper has been received; which will be attended to, if the editor is made acquainted with the author's name.—As much responsibility attaches to the editor of a work of this nature; it must be evident, that the authority upon which any communication rests, should be known to him at least. If any gentleman wishes his name to be withheld from the public, it shall certainly be done; but without this confidence in the editor, no communication intended for the Medical Museum, can be attended to.

The editor thanks "a friend" for his hints on the best plan of conducting a periodical publication of this kind. It will not, however, be prudent to change the plan he has adopted, to meet the wishes of all who may differ from him, lest, like the man and his ass, by attempting to please every body, he may please no one.

MEDICAL MUSEUM.

VOL. I.....No. II.

DR. DRYSDALE'S *History of the Yellow Fever at Baltimore, continued from page 42.*

LETTER IV.

YOU have demonstrated, dear sir, in your late invaluable work, how far the “simplex munditiis” triumphs over the pedantic phraseology and mechanical forms of the schools; and how much more elegance truth may acquire, from the natural garb of simplicity. I will therefore endeavour to imitate your example, whilst I detail the symptoms that appeared in the various systems of the body, which I will pursue, as forming the different divisions termed by physiologists the *vital, animal, and natural functions*.

I. In the VITAL FUNCTIONS we include the sanguiferous system, the organs of respiration, and the brain and its appendages. I shall examine the symptoms,

1. *In the Sanguiferous System.*

The phenomena exhibited by the blood-vessels were greatly varied in some respects, uniform in others, and interesting in all. Whether we apply this observation to the varying conditions of the pulse, or to that convulsive action of the arterial system, which often burst asunder the coats of the vessels, the result will be equally just and striking. The influence of the

late yellow fever was discovered under the following appearances as it related to the

Pulse.

The pulse was *tense* in every form of the disease from its first appearance till its declension in October. It bore this peculiar character in the remissions of the fever; and even when it commenced its career under the insidious cover of an intermittent. It was also *quick*; the mind would be deceived into a belief, that the pulse was slower than it really was, upon account of this peculiarity in its nature,—the systole of the heart being performed in an instantaneous period of time.

Under the impression of every temperature of the air, and under every degree of violence of the disease, the pulse held forth another emblem of its character, by *hobbling* through its functions. A full pulsation was succeeded by another of less force, and no two successive strokes resembled each other in frequency. In one person, I counted three pulsations in one-sixth of a minute; in another sixth, they amounted to the number of fifteen. This irregularity was more or less observable in every case, and in every period of the disease.

In many instances an *intermission* occurred in the pulse. It took place after the second, third, fourth, fifth, or sixth stroke. This was strongly exemplified in one case, in which the intermissions were more frequent, when a diminished heat of the extremities indicated a slight remission of fever. This condition of the pulse occurred sometimes after the fourteenth stroke; and I well remember to have observed in the convalescence of a person who recovered from a very violent attack, an intermission in the pulse to which he was not subject when in health.

The pulse varied much also as to its fulness and frequency. While the very hot weather added to the violence of the fever, a small pulse was more generally observable; but it acquired increase of fulness, as the season advanced. In the first hours, I have sometimes observed the pulse almost imperceptible at the

wrists: nor was it an unusual occurrence, that the pulse, a short period before the triumph of death, became more full, than it had been in the early stage of the disease.

Within the few first hours of the disease, the pulse varied in different persons, from fifty pulsations to an hundred and forty-two. After the first day, it ranged generally from eighty-five to ninety-five in the same period of time; but as death approached, it became slower, while it preserved its fulness to the last minutes of life.

How shall we account for these peculiar phenomena in the sanguiferous system? Why is the pulse sometimes small, sometimes full, but always irregular and tense in the yellow fever?

The tension of the pulse is so common an occurrence, that it will be almost useless to dwell on it for a moment. This species does not depend upon the action of the heart alone, but upon that of the arteries also upon the blood. There was a firmness in these latter vessels, that prevented them from yielding readily to the pressure of the fingers. It is sufficiently obvious that the tenseness of the pulse depends further, upon excess of stimulus acting on the heart and arteries. May not the smallness of the pulse be referred to the same cause? May it not be inferred from the following circumstances, that it depended upon excess of stimulus?—When the great stimulating power of heat was superadded to that of the remote cause of the fever, or when this remote cause was roused with sudden violence into action, this condition of the pulse was most observable. But when the stimulus of heat was abstracted in a great degree by the progress of autumn, the smallness of the pulse was seldom a prevailing symptom. We may infer it also from the nature of the means, which removed the smallness and gave fulness to the pulse. Did not the excessive stimulus, applied especially to the heart, excite its contractions before its ventricles were filled with blood, (for it was not only small, but frequent;) and therefore by protruding no great quantity at each systole, and the firmness of the arteries not easily yielding to its impulse, their distension appeared inconsiderable?

The slowness of the pulse may be referred in part to a morbid state of the brain. That there was an unusual tendency of the blood to the head, is evident from the suffusion of the face, the redness of the eyes, and the dilatation of the pupils, which latter symptom occurred almost without exception after the middle of September. It is farther deducible from the constant stupor and drowsiness very frequently accompanying the disease, and from the coma, delirium and hæmorrhages from the nose. The engorged state also of the whole sanguiferous system prevented the free actions of the vessels, as is inferible from the increased frequency of the pulse after venesection, when it had been preternaturally slow previously to that operation. May we not ascribe that amazing slowness of the pulse, which occurred in the last stage of the disease, partly to an exhausted state of the excitability of the body from the excessive action of the powers wearing down that property? Blisters very frequently at this time produced no effect, either in a general increase of arterial action, or of the vessels over which they were immediately applied.

The irregular and intermitting pulse may be referred to the different intensity of action of the same cause. The latter is more generally observable in diseases of the breast and head; and, as *Ferriar* and *Lieutaud* have remarked, it is sometimes caused by affections of the heart itself. Many symptoms of the fever declared an undue accumulation of blood in the vessels of the lungs, as well as of the brain. These circumstances could not fail of occasioning great oppression and interruption in the regular action of the heart and arteries. When we excite by any preternatural means the heart of a living animal, we observe it to contract with violence and rapidity, and then fall into a state of relaxation and momentary torpor. May not something similar occur in the yellow fever, in which the stimulus applied to the heart is unusually intense? This, aided by the vast push made upon it, by the too great accumulation of blood, will readily lead to irregularity and intermissions in its office. Thus I observed in one case, that when the circulation languished

in the extreme vessels, and an increased determination of blood occurred consequently, in the larger vessels, with augmented pressure upon the heart, the intermissions of the pulse became more unfrequent. But, when this accumulation was diminished by a general diffusion of the blood through the smallest vessels over the body, this occurrence was less remarkable.

Excuse, sir, this digression, into which I have been led unwarily: It is my business to state facts; but to reason on them is at present unnecessary.

Besides these affections of the pulse, the vital functions were deranged by

Hæmorrhages.

When the fever was uncontrolled by medical aid, or treated improperly, the blood-vessels were ruptured by the violent morbid action. In those cases also, which were not opposed with sufficient force, even when the patients were rescued from the grave, hæmorrhages would occur in a small degree before the final crisis of the disease. The blood bursted more generally from the nose; but it was poured forth also from the ears, mouth, bowels, and urinary bladder. A small quantity was protruded from an incision in the arm by a lancet in one case, a considerable time after it had apparently healed.

I could never welcome hæmorrhages in the yellow fever as a favourable occurrence. They indicated the prevalence of excess of action in the arterial system. In typhus fever they generally anticipate a happy termination of the disease—because they do not appear, until an increase of action in the vessels begins to indicate a return of healthy vigour. In the yellow fever, the hæmorrhages took place at various periods of time, according to its violence, and the mode in which it had been treated; and the blood lost, though sometimes small, would, at other times, amount to a considerable quantity.

In this manner, sir, were the sufferings of the sanguiferous system indicated. Nor did the organs of respiration escape the general marks of derangement in the vital functions.

RESPIRATION was much impeded. It was hurried and laborious. As the coldness of the season increased, the determination of the blood to the lungs became more obvious. Pains in the breast became more common; and a cough, with sometimes expectoration of phlegm, more frequently accompanied the disease.

A morbid determination of blood to the *brain* was demonstrated particularly by the suffusion of the face, the redness of the eyes and dilatation of the pupils; by the hæmorrhages from the nose and ears; by delirium, coma, or great drowsiness, and by acute pains through different parts of the head.

The increased determination of the blood to the LUNGS, must have caused an accumulation in the vessels of the brain. But whether actual inflammation or internal hæmorrhages occurred, I cannot determine. I regret extremely that no opportunities were offered to me, during the prevalence of the yellow fever, of examining by dissection its effects upon the body. All my exertions to gratify this wish proved ineffectual. It would have been grateful to me to have discovered, what different appearances, different degrees of violence of the same disease were capable of inducing; to have added further testimony to the facts already given by others, or to have detected errors, if any such existed.

The examination of bodies after death is very desirable, because it extends our knowledge of disease. Yet we should beware of confiding too much in the appearances exhibited, since some important changes may not have been induced, but in the last struggle of departing life. We should endeavour to distinguish between the consequences gradually occasioned by the progress of disease, and the effects suddenly caused by the convulsive conflict with death. The former will teach the natural tendency of the disease, and thereby point out the means of obviating its fatal influence; but the latter by deluding the judgment, will lead us to anticipate events, which may not be always produced, even when death triumphs over the powers of nature or of medicine.

Until we have the means of removing this circumstance beyond all controversy, I am disposed to believe with you, sir, that an engorgement of the blood-vessels of the brain is sufficient to produce the symptoms described. Nor should we be surpris'd, if we do not detect this cause by dissection. For, besides the observations of *Quin*, *Girdlestone* and *Clark*, we well know, that even after death itself has occurred, the congestion of the blood-vessels will disappear. You have instanced the departure of the suffusion of the face, which is a familiar demonstration of the circumstance. If we advert also to those remedies, which moderate or remove the particular symptoms expressive of the affection of the brain, they will lead us to ascribe them only to congestion.

When the contagion acted on the body, without inducing actual fever, it produced restlessness and watching through several nights: and when fever had been formed, an obstinate wakefulness attended many cases, perhaps in a great measure from the excessive violence of pain. When the contagion or miasmata acted with sudden violence, it sometimes induced syncope: But coma or drowsiness more commonly marked the affection of the brain.

The *nerves* were not so much diseased, as to occasion, frequently, tremors or twitching of the tendons. They, in some cases, acquired such a morbid degree of sensibility, as to render the whole surface of the body sore to the touch. These cases terminated fatally, but were also free from subfultus tendinum. Hiccup sometimes occurred, and was in general premonitory of a fatal issue. *Sydenham* speaks of it, as occurring after excessive vomiting: I remarked the truth of this observation in the yellow fever. The hiccup was sometimes aggravated by very great flatulence of the stomach.

The pains accompanying the yellow fever were more or less acute in every case. They extended through the head, back, and knees. In one very violent instance, the former only was affected. In others, the head would be but slightly diseased at the beginning of the fever, while the back and knees suffered

with excruciating torture. The pains were not always confined to the parts mentioned, but pervaded every part of the body—the arms and legs being included in their range.

The pain of the *head* was differently seated—in the eyes, in one or both temples, in the forehead, on the summit, and on the back of the head. It winded in one instance through the cartilage of the right ear. It sometimes appeared to be fixed in the middle of the brain.

In the *back* it was generally confined to the lumbar vertebræ; but extended occasionally through the sacrum, and pierced forward through the bowels. In one case, the pain of the extremities was confined to one arm; in another, it was fixed only in one leg.

The torture from pain was in many instances exquisitely acute. A gentleman declared in anguish, that the pain through his eyes “was enough to deprive him of his senses:” and another confessed, that the pains in his legs were so acute, “that he could cry like a child.” They often caused an incessant tossing from one part of the bed to another, but this inquietude was increased by finding relief in no position. To gain a respite from it, required other means, to be hereafter mentioned.

The pains were not always fixed in the same places with invariable violence. I have frequently observed their abatement in one part succeeded by increased vehemence in another. Those of the head and back appeared in several instances to alternate with each other. In the insidious remissions of the fever, when the heat of the skin moderated,---I very seldom remarked a proportionable remission of pain.

The *breast*, if debilitated by former attacks of disease, was always particularly affected with pain. But in the case of a gentleman, whose *liver* had been two or three times inflamed, I did not perceive that this viscus suffered singularly from the yellow fever.

The *mind* suffered from delirium, but was sometimes unaffected with this symptom through the whole course of the disease. I was informed of one unfortunate case, in which

mania prevailed so violently, that the patient escaped at night out of the window on the first floor. He was found again, and removed to a room upon the second floor. He seized an opportunity on the succeeding night, and leaping through the window was killed by falling upon the pavement of the street. Another person escaped from his nurse and roamed several hours through the woods exposed to a hot sun. A deep coma succeeded and soon terminated in death. A third person required several persons, a few hours before he died, to restrain him from violence. He would counterfeit a wish to kiss his wife, but as soon as he had an opportunity, he would make every effort to bite her; he endeavoured to treat those around him in a similar manner.

The memory failed more or less in several instances. One man totally forgot his own name. He was bled, and while the blood was flowing from his arm, he recollected his Christian name: and before his arm was bound up, he recalled to mind his surname also. But the faculties and operations of the mind were not always subverted by the power of disease. An amazing depression of spirits accompanied the fever; and you have noticed, sir, a self-deception with respect to the nature and danger of the disease. In numerous instances I was struck with a similar delusion with respect to the violence of the most oppressive symptoms. Many persons strenuously denied the existence of pain, especially in the head; yet as the blood was flowing from the vein, they have burst forth into an involuntary exclamation, "that the pain was gone," or that "a new head seemed to be placed upon their shoulders." I am very willing to ascribe this strange circumstance to a derangement of the mind: for persons of the most unsuspected veracity were subject to its influence.---ADIEU!

LETTER V.

MY last letter, sir, concluded with the symptoms expressing the derangement of the vital functions. It was requisite to have included the organs as well as their offices. I will still pursue the same plan; and lest its prosecution should become too tedious, I will endeavour to preserve conciseness, and at the same time to avoid obscurity.

In the ANIMAL FUNCTIONS, we will comprise the senses and voluntary motions.

Symptoms in the Organs of Voluntary Motion.

The *muscles* were affected with numbness or immobility in many instances. Occasional spasms were troublesome, and in one case they were confined to the right side and right extremities. A difficulty of deglutition, apparently disproportionate to the violence of the other symptoms, was frequently remarked. Fluids, instead of being swallowed, were often returned forcibly through the nostrils.

While excessive debility accompanied some cases, a morbid degree of strength attended the last hours of others. A person, who had been almost unable to turn himself in his bed, required the exertions of several persons to confine him to his room, a very few hours previously to his death. He easily overcame the strength of an ordinary man, and walked about his chamber with all the apparent firmness of health, till within a very short period from his last moment. A lady, who had suffered five days under a violent attack of the fever, arose from her bed, and with the utmost composure of mind walked about her chamber and made arrangements for her funeral, but half an hour before her eyes were closed for ever. I saw a young man, an hour before his death walking through his room: he had walked half a square the same day. Among the cases which came under my care, was one, in which strength and reason remained almost unimpaired till the hour of its fatal termination.

The *speech* was much affected in some. In one fatal instance, it was totally destroyed through its whole course.

The EXTERNAL SENSES and their organs suffered under the influence of this disease.

I have already remarked, that the whole surface of the body was sometimes affected with acute soreness to the touch. I will take this opportunity of mentioning the different appearances of the SKIN. It was affected with eruptions of various kinds.

1. I observed a miliary rash appear in one case on the third day.

2. A number of very small red spots appeared, particularly on the arms, in some cases during the exacerbations of the fever.

3. Blotches, such as occur in scarlet fever, sometimes covered the whole body.

4. A few large red blotches, covered with small watery vesicles, appeared in a very mild case; they left the skin of a deep purple colour.

5. In a few favourable instances, there was an eruption about the mouth, similar to that in common fevers. In some which terminated fatally, the lips were sore and raw.

6. In a case, which occurred in October, under the form of an intermittent, an eruption of red itching blotches over the thighs preceded each accession of fever, and disappeared with the paroxysms.

Among my own patients, I met with no instances of abscesses accompanying or succeeding the disease. But in some, who had not been bled, nor used the mercurial purges, I saw very troublesome abscesses; one of which, was on the thigh. It was productive of immense pain and inconvenience from its great extent.

Roupe, speaking of the yellow fever, has remarked---“*Qui vero vi morbi restiterint, et quintum aut septimum diem attigerint, ut plurimum furunculis vel pustulis parvis rubris dolentibus, admodum difficile in suppurationem abeuntibus, variolarum confluentium ad instar, fere in toto corpore tegebantur.*”

The skin, in the early stages of the disease, was excessively hot and dry---sometimes moist.---In general, about the close of the third day, it became preternaturally cool. In some instances this coolness of the skin continued through the whole progress of the disease. It was a very alarming symptom; yet it induced some to deny the existence of fever or of danger, till death itself precluded every means of rectifying their mistake.

The violence of the disease, and its mode of treatment, accelerated, retarded or prevented the yellowness of the skin. On the fourth or fifth day, this change of colour would appear about the neck and gradually extend over the whole body. *Curtin* says, it sometimes attends the first attack of fever: I have seen it occur on the third, the second and the first days in very violent cases. *Bruce* remarks, that it does not appear in some instances before the seventh. I saw it even later than this. The yellowness occurred before death---yet it was not confined only to fatal terminations. Many, who recovered from violent attacks, were as yellow as those who died. Others never bore this emblem of the fever. The body of one person, who recovered, was excessively yellow, while his *face* did not partake of the suffusion. In another, it appeared and disappeared several times on different parts of his body. In some instances, the skin was of a very light purple colour, as if it had been exposed to great cold. Pressure upon the skin caused this colour to disappear, but instead of being succeeded by white as in health, a deep yellow was discovered.

The cause of the yellowness in this disease must be referred to an absorption of the bile. This opinion is corroborated by an observation of *Moseley*;—in the putrid bilious fever, the skin, which had become yellow, did not regain its natural colour, until a complete evacuation of the bile had been made from the intestinal canal.

It is to be regretted, that a more proper name than the *yellow fever* has not been given to this disease. Since this colour is not invariably an attendant upon it, and since it is not peculiarly confined to it alone. It is well known, that many recover

without it; and *Lind* mentions its occurrence in some cases of typhus; *Lafonne*, in the Medical Commentaries, sometimes observed it in a disease occasioned by putrid cattle, and every author has remarked its occasional attendance on the usual autumnal diseases.

After death, I observed the skin appear livid in some places, particularly about the shoulders and neck.

The EYES were greatly inflamed in the yellow fever, and the eyelids half-closed. This last circumstance was somewhat peculiarly characteristic of the disease. It gave the countenance an expression of distress. The light was intolerable in some instances, but seemed to excite no sensible anxiety in others. Yet the patients, even when they said, they felt no inconvenience from the light, appeared, as if instinctively to avoid it by varying the positions of their head. After an uncertain time, the eyes became yellow previously to the skin. The *sight* suffered often from dizziness, and was sometimes much impaired and dull. I knew no instance of its destruction.

The *hearing* was frequently impaired; and one person who was considerably deaf in health, heard much more imperfectly during his fever.

The *taste* was frequently very much vitiated. A total disrelish to sugar occurred in one instance. A relish for chewing tobacco during the exacerbations of fever was remarkable in one case. This weed, as is usual in febrile diseases, was generally disagreeable in the present one. I observed only the instance mentioned, and another in which great quantities of snuff were used.

Let us now, sir, take a view of the NATURAL FUNCTIONS, as including digestion, secretion and excretion.

In noting DIGESTION, we are naturally led to remark the affection of the

Alimentary Canal.

The *stomach* was often affected, several days before the occurrence of fever, with a sensation of heat, or fulness, or

nausea. The latter was aggravated at the commencement of the disease, and vomiting, especially if it had been ushered in by a chilly fit, accompanied its attack. The contents of the stomach, if food had been recently taken, would be rejected, and drinks would be returned, as soon as swallowed. A quantity of viscid mucus, and sometimes bile also would be thrown up by vomiting. Although the vomiting had not accompanied the first symptoms of fever, yet it would appear at some future period of the disease. When it occurred about the termination of the third day, it augured either a fatal termination, or a very violent and dangerous case. The burning heat of the stomach became about this time more general. It was attended with great anxiety and proved very distressing to the patient. It was always a harbinger of danger. During the last hours of the fever, the fluid discharged from the stomach, was dark or black. This was thrown up frequently without any previous or subsequent nausea. In some instances, the vomiting of this matter did not take place, till the moment of death, when a great quantity would be suddenly discharged. In most instances of the disease, the stomach was so very irritable, as to reject every fluid almost as soon as it was swallowed.

When the disease assumed an intermitting form, and more particularly after the weather had become more cold, a vomiting would return with the fever and continue till the close of the fit. It yielded only to the remedies employed in the more obvious and violent forms of the disease.

A flatulency of the stomach was a very common and distressing symptom. Worms sometimes escaped through the mouth; nor was the stomach always free from hæmorrhagy.

The *bowels* were but in two instances, within my knowledge, affected with diarrhœa at the commencement of the disease. A costiveness preceded the attack of fever, and attended through its course. The bowels were affected with so much torpor, as frequently to require the most powerful medicines to procure any evacuation from them. A flatulency of these organs was more rare than that of the stomach.

A dull pain sometimes occurred in the lower part of the belly; but that which extended in some cases from the back through the bowels was severe, till *worms* were discharged. Thus *Pringle* observes on the remittent fever—"the men, who are troubled with worms, have more obstinate gripings or sickness at stomach." Symptoms of dysentery sometimes attended the disease.

Under these circumstances of the alimentary canal, we must readily suppose that the digestive powers could no longer act. Indeed the total destruction of the appetite for food was very remarkable in the yellow fever; nor did it return in the least degree during its remissions. It marked so well the violence and danger of the fever, that a return of appetite for food proved the most certain sign of a favourable issue; nor could the patient be ever declared out of danger, while the total disrelish to food continued, notwithstanding the presence of other symptoms apparently favourable.—The *thirst* was excessive in some instances; but in general it was moderate, and sometimes absent. When present, cold water was much desired; and acid drinks, such as lemonade, were grateful.

Secretions and Excretions.

Lining has observed that the stools in the yellow fever are rarely bilious; and *Blane* says, there is no increased secretion of bile in this disease. Their remarks are just; for unless promoted by medical aid, the *bile* was not always discharged in an unusual quantity.

Its quantity, quality, and colour varied much. In the course of the disease an immense quantity might be discharged by emetic and purgative medicines. The bile was sometimes so acrid as to excoriate the rectum. That which was vomited on the first day, was yellow or green, or a mixture of both. In some few instances it was black. I have already remarked, that it was sometimes mixed with a firm viscid phlegm: and that about the fourth day, or earlier, if the disease was very violent, a dark

fluid, resembling strong coffee and its grounds, would be thrown from the stomach; and as the vehemence of the symptoms approached nearer to death, the matter would become more black. It was free from odour and generally free from taste; but in one instance it was intolerably *bitter*. I am induced therefore to believe it to be a vitiated state, or very imperfect secretion of the *bile*. It often succeeded a vomiting of green or yellow bile; but I never discovered, that it was mixed with either. Were it not a vitiated state of this fluid, why do we not detect the usually coloured bile at the same time? The discharges from the bowels also are of the same nature; and after the vomiting has ceased, enemata have brought away, for two or three days, the same coloured matter, which has at length been succeeded by evacuations of a natural colour.

The treatment of the disease gave variety to the quantity, quality, and colour of the *faeces*. They were sometimes very copious and not very frequent: sometimes small, and occurring every half hour. They were yellow or green, or black, or mixed with blood; sometimes extremely foetid---sometimes free from odour.

The *urine* was very high-coloured and yellow, except in two cases, in which it was limpid. It deposited a copious sediment, even in the exacerbations of fever. In many instances there was a suppression of urine from the first hour of the disease to its generally fatal close. *Sydenham*, if I do not err, has mentioned this symptom, as occurring in the malignant small-pox. The quantity of urine discharged varied very much. *Lining* remarked, that before the third day, it was very considerable, but afterwards small in quantity.

Sweats seldom appeared in the yellow fever. This disease did not tend, like the common remitting fever, to a crisis by discharges from the skin. In many instances this excretion was copious during the first day, but did not afford relief, unless very large quantities had been discharged. In general, the skin was obstinately dry, and resisted the powers of that class of medicines denominated sudorifics. When sweat appeared, it

was either spontaneous, or excited by particular means to be hereafter mentioned. The fluid discharged from the skin was very frequently yellow, not only during the fever, but even before its formation. The sweat in many instances emitted a most disagreeable factor.

Mucus in some cases was discharged in considerable quantities from the fauces. It caused a constant hawking particularly in one case, which terminated fatally. In another it was discharged largely and very yellow, from the nose.

The *saliva* was in one instance remarkably yellow. *Pringle* has mentioned the same circumstance. The tongue was almost without exception *moist*, of its natural colour, but more frequently whitish. It was sometimes white in the first stage of the disease, and afterwards became smooth and red. The reverse also was observable. In two instances the tongue was yellow and dry at the first attack of the disease, but was occasionally moist, and became less yellow as the fever advanced. Towards the close of a few cases, it became dry and swollen: the latter symptom, as well as the yellowness, expressed the greatest danger. The tongue in a case, which ended in health, was very dark coloured but moist. Towards the last stage of the disease, a small dry streak was sometimes observable down the middle of the tongue.

Before we take our leave of the glandular system, I may remark, that the *liver* never appeared to me particularly affected with inflammation. I discovered in most cases a soreness to the touch about the region of the stomach; but I never observed any further uneasiness on pressure, nor any enlargement of the liver, as is usual in inflammatory affections of this viscus. The patients reclined with equal ease on either side, or upon the back. *Moseley* informs us, that the yellow fever never terminates in hepatitis or suppuration of the liver. Indeed, instead of the uncommon determination of blood, which we might have expected to this part, the reverse seems really to occur. The liver did not discharge its usual offices, nor afford that great relief, which its functions, when properly performed, are capable of confer-

ring. This great sluggishness, in the discharge of its duty, led to some particular views in the exhibition of medicine, which I shall notice in another place.—The parotid glands, and those seated about the root of the tongue, were frequently disordered.

You have mentioned a case, in which the whole disease seemed to be concentrated in the lymphatic system. *Pringle* also on jail or hospital fever, gives an instance in which the parotids were swelled---but as soon as the tumors subsided by means of discutient cataplasms, the patient was seized with the malignant fever. In the instances of yellow fever, which came under my observation, I did not remark any particular affection of the lymphatic system.

Let us dwell a moment upon the source of the various secretions and excretions. The *blood*, when drawn from a vein, exhibited different appearances.

1. The serum was always yellow; the crassamentum was never dissolved.

2. The crassamentum was covered with a thick buffy coat, cup-formed and floating in a large quantity of serum. In these cases, the inflammatory action was excessively great and portended the greatest danger.

3. The crassamentum was very firm, but not fizy, and did not float upon the serum.

4. The crassamentum fell to the bottom of the bowl---and was not very firm: the serum resembled water, in which meat had been washed.—In these cases, bleeding produced a good effect more speedily, and this appearance of the blood promised a favourable issue from the fever.

5. The blood did not separate into serum and crassamentum. A quantity of lymph excessively yellow floated on the top of the red globules, till it coagulated. The whole congealed into a solid mass. The gluten when separated from the other part, required force to tear it asunder. There was no appearance of serum, and the mass resisted putrefaction much longer than blood of its usual appearance.

This kind was always observed in the last stage of the fever, particularly if bleeding had not been previously used : it denoted a fatal termination of the disease.

6. The blood, while flowing from the vein, looked very dark---frequently resembling treacle. Sometimes before the stream was stopped, it began to assume a more florid appearance. In some instances it was so hot, that the patients complained of its scalding their arms.

7. After exposure to the air, it soon lost its black colour and became florid---except when it exhibited the appearance of No. 5. in which the buffy coat excluded the action of the atmosphere.

Such, sir, were the symptoms appearing in the yellow fever, as they came under my own observation. I have mentioned none, which are not expressed in some one of the numerous cases, which I committed minutely to paper at the bedside of the sick.

From a view of the preceding pages, how just must that observation of Dr. *Moseley* appear---that “ the disease is in the highest degree possible an inflammatory one, accompanied with such symptoms in a greater extent as attend all inflammatory fevers.”

Some changes were induced in the symptoms of the yellow fever by the variation of the weather. It spread more rapidly during the prevalence of great heat, nor was its course checked by the frequent showers of rain. They were accompanied by a south and south-east wind, which rendered the air more sultry and moist. Much was expected from cold : but when the wind veered to the west and north-west, about the month of September, it had no such desired effect. The symptoms of those who were sick, were increased in malignity, and fatality ; nor did the disease appear to be less generally communicable. It required the intensity of frosts to impede and arrest its progress.

During the prevalence of very hot weather, the fever ran more speedily to death : the pulse was more frequent and small : and in the most violent instances the pains were less sensibly felt and general. The disease yielded now more readily to its proper mode of treatment, than when the season was more advanced.

They, who were attacked, during the prevalence of cold weather, had their cases longer protracted. The pulse was slower and more full: the pains more general, and acute; and they inclined more readily to sweat. Spontaneous vomiting was less frequent, and the stomach was less irritable. The blood was determined more forcibly to the head, as the general dilatation of the pupils indicated; and also to the lungs, as was inferible from the occurrence of a cough. ADIEU.

LETTER VI.

I will now proceed, sir, to mention that *Mode of Cure* to which the yellow fever submitted.

The clouds, which have so long obscured the pathology of this disease, have begun to disappear; and humanity will have less to deplore from its future ravages. The mistaken notions of its nature, like the sword, have thinned the ranks of man; but as they have been so ably exposed by others, it will be unnecessary for me to add another comment on the subject. He, who prescribes for symptoms and not for names of diseases, needs only to review the catalogue already given, to regulate the exhibition of such medicines, as reduce inflammatory action. Among these he will have recourse to

Purges.

We have remarked, that in the yellow fever the bowels are invaded by uncommon torpor, and are obstinately costive. The offices of the liver seemed to be somehow suspended, and did not afford, by an increased secretion of bile, that relief to the body which it frequently does in other diseases. The anxiety and pain of dysentery is mitigated by copious discharges of bile. I have cured tertian intermittents only by soliciting an increased evacuation from the liver: and *Cleghorn* informs us, that evacuations of bile in tertians are always attended with a happy effect.

In the remitting fever, *Donald Monro* remarks the occurrence of thin discharges to be accompanied with every advantage: and *Pringle* asserts, that no natural evacuation, except a cholera morbus, makes a sudden cure of a remittent. These facts lead us to expect equal good from increasing the excretion of bile in the yellow fever. But we must not depend solely upon chance or nature to effect this event.

I have long observed the superior efficacy of mercurial purges over those of any other kind in bilious diseases. *Blane* found five or ten grains of calomel succeed in evacuating bile, when other purges had failed in this effect. Mercury not only cleanses the bowels, but acts also powerfully over the whole glandular system, and causes a diaphoresis when other medicines have proved ineffectual in opening the skin. It seemed therefore excellently adapted in combating the yellow fever: and a soreness of the gums, or a gentle salivation, gave me pleasure on their appearance, as the first tokens of the impregnated state of the body. The good effects of such a circumstance have been noticed by *Wade* and *Chisholm*: the former gentleman lost no patient, and the latter but one out of a very great number, in whom the mercury caused a salivation. You also, sir, have added another testimony to theirs, by informing us, that you lost but one person in whom a pyralism occurred; and out of many who came under my observation,---I know not an exception to their recovery from disease.

To give small doses of a purgative medicine in the yellow fever, is to diminish the probability of a cure by losing time. Their effects, if they produce any, will be of very little consequence. If evacuations be too sparingly made, says *Pringle*, a bilious remittent will become continued. “As a purge, says *Dr. George Davidson*, of St. Vincents, calomel has been used with the greatest advantage, sometimes by itself, but more frequently combined with some active purgative medicines, such as jalap. From some peculiarity in the yellow fever, an uncommon quantity of the calomel is necessary to affect the bowels and salivary glands. As I found a small quantity of it did not produce the

effect I wished for promptly, I have gradually increased the quantity, until I now venture to give ten grains of it combined with five of jalap every two hours, until stools are procured. The calomel is then given by itself." There are many other testimonies in favour of large doses of purging medicines, to remove any childish fears in their exhibition. *Pringle* gave, to discharge the worms in the remitting fever, half a drachm of rhubarb and twelve grains of calomel, and repeated it when necessary.*---The great *Sydenham*† used to administer twenty grains of sweet mercury in a dose, either alone or combined with other purgatives.---*Chisholm* has given an hundred and fifty grains of calomel in one case with every advantage: and you have adduced irrefragable proofs of the utility of a similar practice.

At the first appearance of the fever I combined jalap with calomel, giving each in a small dose of eight or ten grains: They were repeated every five or six hours, until the bowels were freely opened. From four or five such doses, exhibited during the two or three first days, I did not observe an instance of salivation: and although frequent evacuations from the bowels occurred, yet they were small, and brought with them but very trifling relief. The patients were harassed by repeated calls to the close-stool, and the necessary exertions on these occasions, weakened them more than the discharges with which they were attended. This circumstance, together with the reflection that I always failed in my endeavours to excite a salivation after the third day in violent cases, by means of the ointment and small quantities of mercury, determined me to increase the quantity of each dose from the first hours of the disease. Fifteen or sixteen grains of calomel still combined with the jalap flattered my hopes, by the increased advantages obviously following their administration. The evacuations from the bowels were *less* frequent and harassing to the sick, than when smaller doses had been given, but being much more copious, they were accompanied with speedier and more sensible relief.

* Pages 217—219.

† Pages 360—362 of Wallis's edition

Yet a salivation scarcely ever occurred. The jalap seemed to carry the calomel too quickly through the bowels. I therefore omitted it entirely, and gave the mercury alone, in doses of twenty grains every four or six hours, until two or three copious discharges were produced. If one dose of this medicine acted, it seldom operated more frequently than twice. But in several instances, the bowels were not affected by a single dose. Forty grains of calomel were taken in two parts in twelve hours, and acted only twice. The addition of twenty more grains scarcely increased the evacuations beyond their natural quantity. In another case, thirty-six grains of calomel operated but twice; thirty more grains required the assistance of castor oil to produce another discharge. In another violent case, forty grains in two doses, one taken at nine o'clock in the morning, the other at three in the afternoon, produced but three stools: another scruple was now given, which operated once or twice more. These are a few of many instances of a similar nature, which might be advanced in support of the happy effects of large quantities of mercury. I was by no means singular in this mode of practice. Several physicians were soon convinced of the necessity of them, and immediately adopted their use, to the great advantage of their patients.

These uncombined doses of calomel soon excited a *gentle* salivation. As soon as this occurred, I had recourse to other kinds of purgatives to open the bowels two or three times daily: castor oil, small doses of Glauber's salts and cremor tartar, but more especially emollient enemata produced the desired effect.

The prescribers of large doses of calomel could not escape the censure and malicious obliquy of some few physicians. They asserted that they plunged the body into a dangerous or a fatal debility.

When does death ensue from mere debility? But were the allegation just, does it follow, that large doses would produce this effect sooner than smaller? Was this the case? No---it was not. Small doses of calomel, or rather purgative medicines---if they acted on the bowels at all,---irritated them to

very frequent but very small discharges of their contents. But the excessive weakness, which sometimes followed these circumstances, is very erroneously ascribed to the quantity evacuated. The constant or frequently repeated exertions attending the discharges, harassed and wore down the sick. The small quantity evacuated, never brought with it relief, never removed the morbid oppression, but exhausted the powers of the patient in so often obeying the summons to the close-stool.

Does *Hillary* ascribe death to the great evacuations in diarrhœa, in which fifteen or twenty stools have occurred daily through several successive weeks? Does *Clark* attribute death in dysentery to the discharges from the bowels? *Moseley* mentions a putrid bilious fever, which prevailed in the army at Jamaica. No man recovered if he had been treated with bark and cordial medicines. He reasoned on the disease, and suspected the mortality to arise from a dread of evacuations in its commencement, lest they should induce a fatal debility. He had recourse to purges---“but so far was the result of the apprehension from being confirmed by the event, that it was found, that the men acquired strength in proportion as they were diluted and purged.” Every patient who was thus treated, was rescued from the grave---although “many had twenty stools a day for three days successively.” You remember the case of a gentleman, mentioned by *Kirkland* in his treatise on the inflammatory rheumatism, in whom a purge occasioned more than forty stools: he did not sink under its operation and die, but rose from them, freed from a rheumatic affection, which had distressed him sixteen or eighteen weeks. Mr. *Ogle*, a drayman, who was attacked with the yellow fever on the fourth of October, owes his life in a great degree to more than fourteen stools, produced the first day by eighteen grains of calomel and twenty of jalap, administered by that judicious student of medicine, Mr. J. A. Morton.

When large doses of calomel were given, the evacuations from the bowels were very copious and few. The exertions of the patient were more than compensated by the discharges which required them; the oppression was removed and he felt

revived. I never saw a case, in which fifty or sixty grains of mercury had been given in three doses, accompanied with one-half of that sense of immense weakness which attended the exhibition of fifteen or twenty grains divided into three or four parts.

In my own practice I observed the excessive debility, or rather oppressive weakness, which followed the use of trifling purgatives; but when I reasoned on its cause, I could not ascribe it to the evacuations they produced. The administration of large doses of calomel and the invariable benefit resulting from their admission, proved incontestably the error of the charge aimed against them.

It was asserted also, that incurable ulcers must succeed the use of so much mercury.—This charge served only to establish the ignorance of its asserters. Such a circumstance never followed the exhibition of even several scruples of mercury. In no instance was the application of blisters succeeded by ulcers or mortification, but they healed as rapidly as if the body had enjoyed perfect health. One of my patients had been long afflicted with a large ulcer on his leg; and during his attack of violent fever, I saw it black and apparently sphacelated. He took several large doses of calomel and speedily recovered. The ulcer immediately assumed a healthy appearance, and although it had hitherto baffled all his care for several preceding months, it now speedily disappeared.

Whether, upon common occasions, we administer mercury in small divided portions, or in large doses frequently repeated, we produce the same event. The body becomes impregnated with its properties, and a salivation ensues. Why then should we not expect the formation of ulcers with equal propriety in both cases?

Could the weak charges that have been mentioned, have been just, why have we not observed ulcers following the very extensive use of mercury in the cure of cynanche trachealis? Why do they not succeed a salivation of some weeks continuance in lues venerea?

Dr. Clark assures us that, in the administration of mercury in dysentery, he “was thoroughly persuaded, that it is possessed of powers to remove inflammation and *ulceration* of the intestines, which are the chief causes of death in this distemper.” But why do not ulcers attend the use of mercury in inflammation of the liver; and how does it happen that when salivation was excited in the yellow fever, it quickly ceased after the medicine was omitted, and the gums again acquired their healthy firmness? But to what supernatural power shall we fly to explain, why the ulcer in the sick man’s leg changed its sphacelated form, assumed a healthy appearance in so short a time, when he had taken fifty grains of calomel in two days?

But calomel, it is said, will cause dropsies also! Why did not this disease succeed those cases of fever, which were opposed by large doses of that medicine? I saw but two instances of œdema about the feet, succeed the fever, and in these it quickly ceased to appear. We might expected it more frequently, when we reflect, that this affection so generally follows pleurisy, scarlatina and puerperal fever.

But such doses, it was said, of calomel were too violent purgatives. It was forgotten, or not known, that the uncommon torpor of the bowels required violent means to remove it. But if the quantities had been too severe, why were they not followed by hæmorrhages from the bowels, which so generally occurred when the fever was not opposed? In one case only I observed streaks of blood in the stools; but in this instance, only one small dose of calomel had been given on the first day, and Glauber’s salts and cremor tartar, or castor oil had been afterwards administered in small quantities. The bile itself was sometimes so acrid as to excoriate the rectum, but this took place also when no mercury had been used. I have observed this circumstance to occur in common remittents, to such a degree as totally to prevent the introduction of a glister pipe. Dr. *Huck* remarked the same circumstance in the yellow fever from the natural evacuations of the bile. But are not the bowels much more irritated in dysentery than in the yellow fever, and does

not calomel produce happy effects in that disease? We must doubt our own senses, or the authority of *Cleghorn, Clark and Pringle*, before we refuse to admit this truth.

The weakest constitutions were not injured by large doses of calomel. Delicate girls and women derived advantages from it, equally with robust men. The life of an infant, scarcely five months old, was preserved by taking frequently five or six grains of calomel in a dose.

I would not have consumed an instant, sir, in dwelling upon the preceding objections to the use of calomel, were it not to point out some portion of the ignorance and error with which all improvements in medicine have to contend. Our science finds in its progress greater obstacles, from the contracted views of some physicians, than Hannibal encountered in his passage over the Alps.

The *effects* of the calomel purges in the yellow fever were great and obvious. Their operation was assisted, and perhaps sometimes varied by the bleedings used at the same time.

1. In some instances, the mercurial purges, in two or three hours, produced sensations of needles darting through the whole body. These lasted but a moment and were generally succeeded by an universal sweat.

2. The first dose often excited vomiting two or three times; but being attended with very little nausea or retching, it proved a more safe and less irritating emetic than the preparations of antimony, and vomited, only when there appeared to have been an accumulation of bile.

3. The large doses produced but few discharges from the bowels: they were very copious however, and attended with great relief to the sick.

4. By removing excess of stimulus and immense oppression, they revived the patient, and gave him an increase of strength.

5. When the pulse was very frequent and low, the copious evacuations from the bowels were followed by increased fulness and diminished frequency of the pulse. And when it was pre-

ternaturally slow, they raised it to a more natural degree of frequency.

6 They moderated the violence of the fever, removed the pains especially from the back, and obviated the return of severe exacerbations. Hence, they alone were frequently sufficient to arrest the progress of the disease.

7. They caused the vomiting to cease when it accompanied the commencement of the fever: and very often, small doses of calomel repeated every one or two hours, prevented the return of the vomiting of coffee-grounds, even after they had made their appearance.

8. By means of large doses, the whole system was soon impregnated with mercury, and the various glands resumed their suspended functions. The general diffusion of this medicine through the body was announced by a tenderness of the gums. I saw no case terminate fatally after the occurrence of a salivation, however violent they had previously been. *Huxham* remarks the importance of such an occurrence in his slow nervous fever.---“ There is no evacuation, says he, of more favourable portent, than a pretty free salivation without aphthæ.”

9. I ascribe to the free use of mercury, the escape of the lymphatic system from participating more commonly with the disease;---and to the large evacuations of bile, the non-occurrence of yellowness of the skin in many cases, which ended in health.

The times of administering the mercurial purges were regulated by no particular circumstance of the fever. They were given as early as possible in the disease, and repeated every four or six hours, without regard to remissions or exacerbations, until the desired effect was obtained. The sooner the bowels were well opened, the greater was the prospect of recovery: and when a salivation was excited, it was requisite to procure at least three stools daily, by castor oil or by glysters; but of these last we will speak hereafter. This prevention was very necessary, for the lapse of a few hours without an evacuation, was fre-

quently followed by great anxiety, an increase or return of pain, or by vomiting.

I shall now close this long letter by again bidding you ADIEU.

(To be continued.)

Observations on Chorea Sancti Viti, extracted from a Letter of
Dr. GEORGE WILLIAMSON, *to the EDITOR, dated Baltimore,*
Sept. 6, 1804.

I FLATTER myself thou wilt excuse the liberty I am about to take, in presenting thee a few observations on Chorea Sancti Viti. This liberty I should not have taken, had I not seen thy remarks on the subject in the last number of the Medical Repository.—On reading those observations, it immediately occurred to me, that during my practice in Queen Ann county, eastern shore of Maryland, a case came under my care which might serve to confirm thy theory, of that disease being a symptomatic affection; but whether it may not be a symptomatic affection of some other disease, as well as of hydrocephalus is questionable with me. On examining my note-book, I am sorry to find I was not as particular in my observations as I ought to have been; I will, however, proceed to relate the case as it there stands.

“In the 9th month (Sept.) 1803, I was called to see a child about four years old, who had laboured under the intermitting fever for some days: his father was much alarmed, and said, his child, the day before, was taken with violent fits, which were almost continually on it; and which would soon terminate its existence provided relief could not speedily be procured.--- I immediately went to see his boy, and found him curiously affected indeed! his pulse was regular, his eyes dull and languid, he was speechless, and appeared almost senseless:---

his little frame was agitated in the most extraordinary manner imaginable; sometimes, almost the whole frame; at other times, not more than one limb, as an arm or leg---sometimes his tongue only would be affected, then his eyes: his breast and upper side were most affected; in fact, the side he laid on was never convulsed. Having never seen such a case, and not recollecting to have read of a similar one, I was at first, at a loss what to do; I, however, soon resolved on trying a blister, and accordingly applied one to the back of his neck, which drew remarkably well, and had a very happy effect. I gave no internal medicine except a little saline mixture. When I called the next morning the child was brave, could talk, knew his relations, eat a hearty breakfast, and no disease appeared to be remaining, except a slight fever, for which I continued the saline mixture.---I heard of him a few days after, when he was well and running about.---Whether this child was or was not afflicted with the hydrocephalus, I shall not pretend to determine; but might I hazard a conjecture from the state of his pulse and eyes; an obtuse pain in his head, which, (if my memory serves me) his parents told me he complained of some days before; and also from his idiotic appearance, I should suppose it probable he was.---Thou hast justly said ‘Man is not the only animal subject to the chorea.’ Thy mentioning the case of thy dog to prove the fact, brings to my memory a similar one, in a dog of my father’s.---When he was a pup he had the *distemper* very bad, and was ever afterwards troubled with the chorea: the first attack was violent, but as he grew up it became slighter. Let him be in what position he might, his frame was continually agitated; so much so, that it would have been utterly impossible for him to have stood still one minute: he was so universally affected that his barking was not natural.”

Account of an Albino. By JOHN REDMAN COXE, M. D.

ON the 6th of February 1800, a man stopped at my door to solicit charity. He leaned upon a staff;---and appeared to distinguish objects with so much difficulty, that I was desirous to ascertain the cause. I accordingly took him into the house, and upon examination, found he exhibited the marks of an Albino.---The hair of his head was of a transparent white, not in the least resembling the grey hair from age. His eyebrows and eye-lashes were of the same appearance, as was likewise his beard. The skin of his head beneath the hair, seemed to approach to a light pink colour, and the skin, wherever I had an opportunity of seeing it, was of a very light hue. He had not much hair on his body; but the usual quantity, or perhaps an excess, on his legs and thighs, and of the same colour with that on his head.

His mouth and nose were large; his eyes deep sunk in their sockets; the openings of the lids, small, and the eye with difficulty discovered, without elevating the lid. The pupils appeared of a light rose colour, the iris of a light grey. The tunica conjunctiva of its natural colour, but appearing to have a greater number of blood-vessels than is common towards the external canthus; this probably arose from his being frequently subject to sore eyes, especially after walking in the wind.

He says he is much more sensibly affected by cold than by heat. The pulse in both wrists beat about eighty in a minute. He is very subject to an hemorrhage from the nose, often eight and nine times a day, and coming on without even the action of blowing.

He had a slight tremor of the head, which he said had been the case from his birth; and he is occasionally subject to cramps in his fingers and legs, and considerable weakness of his arms.

He is about six feet in height, and not lusty. Sleeps well, and says his vision is most distinct about the dusk of the evening, when he sees tolerably well. His appetite is generally

good, though he is frequently attacked with a vomiting of green or yellow bile. For these last six months this had occurred nearly weekly. His bowels are regular, and his urine natural in quantity and appearance; respiration perfectly good.

The account which he gave me of himself, was, that his name is Joseph Kearsley, and that he is twenty-five years of age;---that he was born at the Northampton iron-works in Maryland.---His father was a waggoner, of a brown complexion, and employed about the iron-works. He married one Jane Paul, who bore him five children; he, Joseph, and his brother William being the eldest, and twins.---William was affected in a similar way in every respect as Joseph.---Then came three girls at separate births;---the eldest of whom saw perfectly distinct. She had sandy hair, and died young after a week's illness. The two other sisters saw rather better than either him or his brother, but their eyes were red, though less sensible to the light.---They both had brown hair, and died, one at four years of age, the other at two.

Joseph, the subject of the present paper, was the youngest twin brother. When boys they employed themselves in digging the ore and shoveling dirt;---earning a guinea a month, when about eleven or twelve years of age. Their eyes were red from their birth, and, like their two youngest sisters, they saw much better than at present, their eyes being then much less sensible to the light.

They continued the above mode of life till they were about nineteen or twenty years of age, when they went to New York, and there employed themselves in turning the wheels of tobacco-nists and cutlers. They both enjoyed good health, and remained in this situation three or four years. In the year 1798, they quitted New York on their way home, during the prevalence of the yellow fever. William had received the disease before he left New York, and died after ten days illness about two miles beyond Trenton, having walked three miles on the day he died. Joseph slept with him every night,---and held

him in his arms when he died, yet no *contagion* was communicated!

Two years past, Joseph had the small pox, by inoculation, in a very favourable way, about forty pock appearing on his face, and principally on that side which he usually placed nearest the fire---Some time ago, he had the intermitting fever for fourteen weeks. It ultimately yielded to the bark, though he says he thinks it has injured him, *from laying in his bones*.

His brother was as tall as himself, and was affected with a similar tremor of his head from his birth, to that which affected Joseph.

He appeared of a mild disposition, though he says he is much affected with vexation and low spirits, owing to his unfortunate situation.

He describes the place of his birth to be a very low ground, surrounded by hills, marshy, foggy, and very sickly. But, as far as he knows, none of the neighbours were affected in a similar manner.

I regret that my account of this interesting case terminates here; the man appeared anxious to go, and promised he would call again with his mother, who he said could give me further information, especially respecting his sisters; he however has never since that period given me the wished-for opportunity. After he was gone, many questions occurred to me, which the shortness of his visit prevented my attending to.

With respect to the cause of this phenomenon, Mr. Blumenbach is of opinion "that the redness of the iris," (which however does not uniformly exist, as in the present instance) "and of the other internal parts of the eye, as well as the extreme sensibility which accompanies this redness, is owing to the total privation of that brown or blackish mucus, that covers all the interior parts of the eye in the sound state."—And Mr. Buzzi, surgeon to the hospital at Milan, has demonstrated by dissection, what Blumenbach had only supposed. In this instance the *uvea* was entirely wanting; and the skin, detached from different parts of the body, appeared to be entirely divested

of the *rete mucosum* ; from the absence of which, Mr. Buzzi accounts for the whiteness of the skin and hair.

From the observations of the above gentlemen, it appears pretty evident, that the absence of the *rete mucosum*, and of the *pigmentum nigrum*, is to be regarded as the proximate cause of the singular appearance of the Albino ; but as far as I can yet learn, we are in the dark as to the remote cause. It seems most probable, that the parents, especially the mother, during the period of gestation, must influence it much ; for we see in the same family, a variety of offspring. Thus, in the family of the present subject, of five children, four were affected in a similar manner, whilst an intermediate child was totally exempt. And Mr. Buzzi relates the case of a woman of Milan, who had seven sons ; the two eldest had long hair and black eyes ; the three next had white skins, white hair, and red eyes, and the two last resembled the eldest. Mr. Jefferson also mentions three sisters of this description, born of parents without any mixture of white blood, and having two other full sisters, black.*

* “ I have known four of these myself, and have faithful accounts of three others. The circumstances in which all the individuals agree are these. They are of a pallid cadaverous white, untinged with red, without any coloured spots or seams ; their hair of the same kind of white, short, coarse, and curled as is that of the negro ; all of them well formed, strong, healthy, perfect in their senses, except that of sight, and born of parents who had no mixture of white blood. Three of these Albinos were sisters, having two other full sisters, who were black. The youngest of the three was killed by lightning, at twelve years of age. The eldest died at about twenty-seven years of age, in child-bed, with her second child. The middle one is now alive in health, and has issue, as the eldest had, by a black man, which issue was black. They are uncommonly shrewd, quick in their apprehensions and in reply. Their eyes are in a perpetual tremulous vibration, very weak, and much affected by the sun : but they see much better in the night than we do. They are the property of Col. Skiptwith of Cumberland. The fourth is a negro woman, whose parents came from Guinea, and had three other children, who were of their own colour. She is freckled, her eye-sight so weak that she is obliged to wear a bonnet in the summer ; but it is better in the night than day. She had an Albino child by a black man. It died at the age of a few weeks. These were the property of

Of the cases recorded, it would seem to be more prevalent among males than females. Mr. Jefferson from the cases which have been recorded by him, draws a different conclusion.

This affection it appears may be either local or general, as we find the rete mucosum may be absent, whilst the pigmentum nigrum exists; hence the red pupil is not universal. This appears more particularly the case in the black Albino. Some are even born of a mottled colour, evincing a partial loss of the rete mucosum.

Does this affection take place immediately on conception, or is the change effected during the progress of pregnancy? Mr. Buzzi mentions that the woman adverted to, "during the three pregnancies that produced the Albinos, had a continual and immoderate appetite for milk, which she took in great quantities;" but this was not the case when with child of the other four children. Whatever it may be, which influences this occurrence, it would appear must be accidental, as the alternate birth of Albinos, and of perfect children, could not otherwise in any instance take place.

It appears that the offspring of these *lusus naturæ* are sometimes perfect, at others, similar to themselves, as in the cases

Col. Carter, of Albemarle. A sixth instance is a woman of the property of a Mr. Butler, near Petersburg. She is stout and robust, has issue a daughter, jet black, by a black man. I am not informed as to her eye-sight. The seventh instance is of a male belonging to a Mr. Lee of Cumberland. His eyes are tremulous and weak. He is tall of stature, and now advanced in years. He is the only male of the Albinos which have come within my information. Whatever be the cause of the disease in the skin or in its colouring matter, which produces this change, it seems more incident to the female than male sex. To these I may add the mention of a negro man within my own knowledge, born black, and of black parents; on whose chin, when a boy, a white spot appeared. This continued to increase till he became a man, by which time it had extended over his chin, lips, one cheek, the under jaw, and neck on that side. It is of the Albino white, without any mixture of red, and has for several years been stationary. He is robust and healthy, and the change of colour was not accompanied with any sensible disease, either general or topical."

mentioned by Mr. Jefferson. No light is therefore thrown upon the source of the affection by this fact, which seems altogether accidental.

The instances of negroes becoming white, are very numerous.—I do not recollect that in any of these, the pigmentum nigrum has been absorbed, as no mention is made of a change in the colour of the eye. Indeed it is not clear, whether the colouring matter of the rete mucosum is taken up, or only changed; in some, at least, we are told the colour is of a healthy ruddy white, not like that of an Albino.

The sudden change of the hair in a few hours, from fear, from a black to a white colour, of which we have several well-attested facts, must depend upon the change of colouring matter taken up by the hair, from the rete mucosum. Its rapid alteration, especially from such a cause, is highly extraordinary.

In the animal creation man is not alone subject to this change of structure.—In Mr. Peale's museum, are the opossum—mouse—rat—muskrat—flying and ground-squirrel, with white hair and red eyes; and a white black-bird, and white yellow-bird, with black eyes.

Does it ever occur in cold-blooded animals? Mr. Blumenback, who paid great attention to the subject, never saw it in them.

TO DOCT. JOHN REDMAN COXE.

HAVRE-DE-GRACE, 25th Sept. 1804.

SIR,

AFTER reading the observations of the celebrated Dr. Thornton and the Rev. Mr. Townsend on the efficacy of yest in the cure of typhus fever, I had determined to make trial of it, the first opportunity which should present itself, and am highly gratified by the result.—On the 12th inst. I was called to

a man of about 40 years of age labouring under a bilious autumnal fever, he lay in a motionless, insensible state, his pulse ninety, weak and intermitting—his eyes open and fixed, except on the near approach of any object, when they discovered that tremulous motion, which is customary—his mouth half open gave me an opportunity of inspecting his tongue and fauces, which were covered with a dark-coloured slimy bilious matter—his extremities were cold, and his whole body covered with a cold clammy sweat—now and then a trembling and twitching of the tendons of the arms and hands were observable—all attempts to make him speak were ineffectual. He had been fifteen days ill, and twenty-four hours in his present situation. I immediately ordered two large blisters to be applied to his legs, and directed half a wine-glassful of Madeira wine and water to be poured down his throat every two or three hours, and in the intervals tinct. cinchonæ in small quantities conjoined with aromatic tincture: in ten hours he was without the smallest perceptible alteration, but continued in the same state of insensibility, except when raised to take his wine, which he greedily swallowed when put to his mouth; in twenty-four hours the blisters were cut and dressed without rousing him. In despair of being able to save him, I ordered his mouth and fauces to be well washed with vinegar and honey, and a table-spoonful of yest to be given every three hours; in ten hours after his taking it, when his blisters were again dressed, he complained of their foreness and spoke of his approaching death, but still appeared not to observe my entrance, and could not answer when spoken to; his pulse was slower and fuller than before, his skin warm, and his eyes had lost a good deal of their vacant stare: he had taken during the day four table-spoonfuls of yest, and drank a pint of Madeira wine; he was ordered an anodyne at night which procured him a good sleep, and in the morning I found him sitting up in bed—his pulse was now about seventy, full, soft and regular, and no symptom of disease remained but debility. He ate this morning a pint of panada, the first food he had taken for three days. As nothing

was now necessary but to support the vital energy, I directed a continuance of the tinct. cinchonæ with wine and a generous diet, and that his bowels should be kept moderately open with some gentle medicine as ienna, &c.—he continued to mend, rapidly, and in three days could walk abroad.

Should you think the above facts worthy attention, by giving them early publicity in your useful Museum, you will gratify,

Sir,

Your Obedient and Humble Servant,

TOBIAS WATKINS.

Account of an Abscess of the Liver, terminating favourably by Evacuation through the Lungs. By DR. F. PASCALIS.

PHILADELPHIA, September 28, 1804.

DEAR SIR,

THE history of successful treatment in a dangerous complaint should not be indifferent to medical readers; but the following case will, perhaps, appear the more interesting, as we may derive from it, practical means for discriminating between distinct causes and similar effects, and for a method of cure far different from ancient and much approved doctrines.

The patient I allude to, a man of forty-two years of age, is evidently of a sound constitution and of a regular mode of living: yet, with a bilious habit, and a great share of organical irritability, he had much impaired his health by previous fatigue of mind and body, when, in the middle of last July, he was seized with a violent fever and delirium. No time was lost to ascertain the nature of his attack. Three eminent physicians endeavoured to counteract the inflammatory symptoms by repeated bleedings and laxative remedies. Two days elapsed without any abatement of the fever; and it seemed

still difficult to give a name to the disease, as no particular determination could yet be pointed out. Five times the blood had offered the appearance of a *lotura carniūm*. On the third night, however, the patient began to cough and to spit much mucus tinged with blood. He complained also of a pain beneath the right breast, which extended down in the hypochondre of the same side, and connected with the shoulder. A tumor was now discovered on the liver and felt below the true ribs; for this reason, depleting and antiphlogistic remedies were continued, with blisters and cuppings on the affected parts, and two grains of calomel every hour or two; but the stomach was so irritable that it frequently rejected this, and other medicines, which had very little effect or none at all:—it was therefore, by the help of six successive bleedings more, that the patient apparently grew better and could at the end of three weeks sit up and walk a little.—We must now observe, that during the abatement of the inflammatory symptoms, respiration was sometimes tremulous, a slight yellow suffusion had spread over the body; night sweats were profuse; and the patient could not lie down any length of time, without being roused up by horrid feelings of an impending suffocation, and great was besides the bodily anxiety, which proved his convalescence to be delusive; indeed, a fresh pulmonary inflammation took place, with cough, violent delirium and fever. The exacerbations were great, in the evening especially, and required three successive bleedings within the period of four days. On the fifth, the case was really much to be despaired of; the debility being extreme, the cough unabated, the pulse corded, and the night sweats rendered very distressing by the heat of the season. The night following, he was seized with such spasms of the bronchiæ, that he would have attempted to bleed himself, had he not been promptly relieved by that operation. The emergency of the case pointed out to the attending physician, that as an internal abscess could not be doubted of, he must stimulate and even convulse the *primæ viæ* to promote its rupture and discharge. A light antimonial

mixture evidently contributed to that desirable effect ; for after several doses were taken, large evacuations of pus were brought on, by, and with cough. They continued as it were, by spells, and took place, once at least, in twelve hours. They were also easily promoted by taking nourishment, or tonics, and by the jolting of a carriage; the nauseous taste of the matter frequently excited vomiting, which all together, with the cough, rendered the convulsive exertions of the abdominal muscles very distressing. These evacuations lasted nearly eight days, and after the two last, which were more copious and mixed with white flakes, the patient, who was already altered for the better, remained convalescent. A slight foreboding was felt in the right hypochondre, which gradually disappeared. By the help of a sound and restrained diet, and of exercise by riding, he has attained a perfect state of health.

We may distinctly perceive three periods in this case; that of an inflammatory fever preceding the formation of an abscess in the liver, and attended with a symptomatic pulmonary inflammation; that of a cessation of all inflammatory symptoms, offering evidently, those of an internal imposthume; and that of a fresh inflammation in the diaphragm and lungs, immediately followed by the discharge of the matter. It could not therefore be a matter of doubt whether the abscess was in the liver, since the patient began to feel pain, to cough, and to spit blood, on the third day only of the disease. The latter symptoms indeed should have kept pace with the invasion of the fever, had the pulmonary inflammation been the primary disease. The tumor or hardness discovered and felt under the true ribs, and the yellowness of the skin, were also, direct proofs of the affection of the liver, the subsequent effects of which were evinced by the existence of the cough, only, during the first inflammation of that viscus, and at the period of the discharge of the suppurated fluids, through the diaphragm and lungs. The possible inflammatory adhesion of those parts is a well-established point of pathological doctrine, and of course they may simultaneously be corroded by the

pus, and open an easy issue through the air-vesicles and bronchiæ. *Lieutaud* mentions the instance of a monstrous tumor on the abdomen, which proved to be an abscess of the liver, when it was discharged through the lungs, and almost emptied before the exhausted patient expired. Indeed, a fortunate concurrence of many circumstances only can determine such a favourable termination of the *pleuritic-hepatitis*, as *Cullen* observes, but it may be encouraging to remark that instances of the same are not uncommon. We may mention that of your honoured grand-father, Dr. John Redman, who to this day, in his eighty-third year, has continued to enjoy a healthy life.*

No case of disease, I should believe, requires a more sagacious and experienced judgment in practice. Contrary to what we have been taught by many celebrated writers, to withhold the lancet, after suppurative inflammation, in the present instance we see, that it has been, *fifteen times*, resorted to, and with success.—I cannot say the same of mercury, although it is almost a specific in hepatitis; for our patient, who was repeatedly put under its operation, received no benefit from it, perhaps owing to the rapid formation of the abscess, or to accidental insufficiency of that medicine. Tonic and stimulating remedies were of great help, and in no case of continual exhaustion have I witnessed more advantage derived from nourishment, sparingly, but frequently exhibited.

Before I conclude this paper, sir, permit me to inform the reader that I was myself the patient alluded to, and to offer my sincere and unfeigned thanks to the three eminent physicians who conducted my treatment, Dr. Rush, Dr. Physick, and Dr. Caldwell. Their sedulous kindness, guided by a skillful judgment, adopted a mode of practice apparently violent; but it was evinced the wisest, in a case which offered no chance from nature or constitution. Of the attending physician, Dr. Rush, who had the most troublesome task, during seven weeks of confinement, I should not forget to mention

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* The attack here adverted to, took place 50 years ago.—E.

the humane and affectionate care; nor to remark, that with his great talents, he eminently possesses all the qualities which constitute the physician. I wish for those gentlemen, all possible professional success and private happiness.

I have the honour of subscribing myself, with great esteem,

Dear Sir,

Your most obedient Servant,

FELIX PASCALIS.

DOCT. JOHN R. COXE.

An Essay on Superfoetation. By DR. WILLIAM DEWEES.

THE possibility of superfoetation is not a new idea: the present essay is an attempt to revive it, and to establish its probability, as well by reasoning as by facts. Many cases have occurred since the history of medicine to countenance a belief in it, and it did for a long time prevail; but, like many other opinions that could not admit of absolute demonstration, it has long since been laid aside, or in other words, held as a physical impossibility.

It has been urged that superfoetation could not take place, first, from the indispensable necessity of the male semen passing through the mouth of the uterus to produce conception; and secondly, as soon as this event has taken place, the os uteri closes, and becomes impervious to the semen ejected in subsequent acts of coition.

If these opinions are founded on facts, the impossibility of superfoetation is established beyond the power of controversy; but these are the points to be investigated.

Let us therefore inquire into the probability of this theory, and see how well it will accord with facts and reason.

Before we proceed, however, any further, let us for a moment consider the anatomy and situation of the unimpregnated uterus: we shall find it a small flattened body floating as it were in the middle of the pelvis; composed of muscular fi-

bres, nerves, blood-vessels, lymphatics, &c. divided in general by anatomists into body, fundus, and neck; having two small perforations near its fundus, which are the passages to and from the fallopian tubes; with a cavity capable of admitting a bean if its sides were distracted; but these sides are, for the most part, if not always, when not mechanically stretched by some power or other, in a state of collapse or contact, or at least as much so, as a pretty thick mucus with which it is constantly supplied, will admit of; having a neck pendant in the pelvis, which is pervious and capable of admitting a probe, and this, like the body, is also lined with a thick ropy mucus; the termination of this neck is the os tincæ, which has no fixed place in the pelvis or vagina; it is sometimes found inclining to the right, at others to the left; now looking upwards and anteriorly, presently dipping downwards and posteriorly; but most frequently it is found (especially in women who have borne children) lying or resting on the internal face of the perineum; possessing no power that we are acquainted with, to fix its situation at any time, consequently is subject to all the changes of place that the pressure of the abdominal muscles may give it, when exerted in making of water and going to stool; to all those that may arise from the weight of the intestines and viscera; from the full or empty bladder; from the distended or flaccid rectum, &c.

After having thus far considered the uterus, let us next attend to what must be effected by the male, that impregnation may take place agreeably to the theory just mentioned. It is, that the male organs of generation must have sufficient vigour to push a thick tenacious fluid through the narrow aperture of the neck of the uterus, and make a lodgement of it within its cavity: can it for an instant be supposed they possess this power? we think they do not for the following reasons.

1st. Because they have not, in our opinion, sufficient strength for this purpose, if it even be admitted that the extremity of the male urethra and the os tincæ of the female were in a state of perfect apposition.

2dly. Because they seldom or never are in a state of apposition, owing to the contingencies just mentioned on the part of the female; and also on some depending on the male; the penis being either so long as to reach beyond the mouth of the uterus, or the urethra so imperfect in its continuance along the penis, as not to reach beyond the labia. We have abundant examples of the former among blacks, and of the latter, *Morgagni** gives us some memorable instances.

3dly. Because the male organs do not possess sufficient power, when exerted even to their greatest degree, and when free from all restraint, to effect this purpose; but their power is constantly diminished, by the vagina for the most part surrounding and embracing the penis pretty firmly throughout its whole length, and by the end of the penis coming in contact with some of the soft parts within the pelvis;† consequently, the impetus the semen derives from the parts destined to push it forward, must be very much abated; and its projectile force is not only thus nearly destroyed, but its direction is so altered, that it cannot effect a lodgement within the uterus.

4thly. Because the tenacity of the male semen is such, as renders its passage through the small aperture in the neck of the womb impossible, even by a power or force much superior to that which we may rationally suppose to reside in the male organs of generation.

5thly. Because the small aperture through which the semen must pass, is constantly lined, or rather filled, with a thick tenacious fluid, which alone would seem to offer an insuperable barrier to its progress, were the penis and os tincæ in the most favourable state of contact.‡

* *Morgagni de causis et sedibus morborum. Epif. xlv. Art. 8, &c.*

† This especially happens in women who have had a number of children; for in them the uterus becomes habitually lower after each succeeding labour, so that their uteri lie for the most part just within the os externum: besides, many women are subject to a prolapsus of the womb so that this viscus occupies completely the vagina—yet impregnation takes place with them as readily, as with those who are not subject to this accident.

‡ Besides the reasons just mentioned, we may urge cases, where it was physically impossible for the semen to procure admission into the uterus, through its

Some, however, have been determined to overcome every difficulty that may be urged against this direct conveyance of the semen, by supposing the uterus possessed a power of admitting the penis by the opening of its mouth.

The admission, however, of this glaring stretch of probability, will not answer their purpose, unless they also shew us a power whereby the direction of the neck of the uterus may be constantly regulated; sometimes to advance it or make it recede; to elevate or depress it, as circumstances may require: for we have already said they were seldom or never in a state of apposition.

Besides, many cases of impregnation have taken place, where the penis never entered the vagina: a few of which we will relate.

Mauriceaux * mentions a case of a woman who conceived and was delivered of a child, although her hymen was not broken by coition.

Ruyfch † relates a remarkable case of a woman being in labour whose hymen was entire, and against which the child's head pressed and prevented its delivery. He cautiously made an incision through it, and then perceived another thick membrane, this he also divided and the woman was delivered.

Hildanus ‡ mentions a case somewhat similar to the two just quoted. He says a young woman in Paris was married, but could not admit the embraces of her husband; in consequence

mouth, by the force exerted on it by the projecting organs. In one instance with which I am well acquainted, the opening of the urethra is not at the extremity of the penis, but under the glans and on one side of the frænum.—In another with which I am equally well acquainted, the impetus the semen receives, however powerful it may be, is effectually destroyed before it escapes from the canal, by a stricture in the urethra; a considerable time is therefore employed before the semen is discharged, and this is at last only effected guttatim. In both the above cases the wives of these gentlemen bear children: nor is there the least room to suspect their fidelity. In these instances, how was the semen made to pass through the neck of the uterus?

* Observat. 489. † Tom. I. Observat. 22.

‡ Centuria III. Observat. lx.

of which he sued for a divorce; but the woman suspecting herself pregnant, was examined by several eminent surgeons, who found the entrance of the vagina shut by a strong, thick, callous membrane, in which were several small openings sufficient to allow of the discharge of menstrual blood. The membrane was divided, and by proper means kept open; the husband was satisfied, and in six months the woman was safely delivered of a full grown child.

Harvey* says, he “knew a woman, who had all the interior part of the neck of her womb excoriated and torne, by a difficult and painful delivery: so that her time of lying-in being over, though she proved with child againe afterward, yet not onely the sides of the orifice of the neck of the womb near the nymphæ did close together, but all the whole cavity thereof, even to the inner orifice of the matrix, whereby there was no entrance even for a small probe, nor yet any egress to her usual fluxes. Hereupon the time of her delivery being arrived, the poor soul was lamentably tortured, and laying aside all expectation of being delivered, she resigned up her keys to her husband, and setting her affairs in order, she took leave of her friends. When, behold, beyond expectation, by the strong contest of a lusty child, the whole tract was forced open, and she was miraculously delivered,” &c.

We shall now add another remarkable fact from the same author.†

“The queen,” says he, “had an exceeding white mare, excellently shaped, presented unto her: whose genital parts (left by going to horse shee might endanger the beauty of her proportions, and become unfit for use) were, as the custome is, locked up all with iron rings. Notwithstanding which, this mare (by what accident I cannot tell, nor could the groomes inform me) was made big with foale; and at last, when they feared no such matter, she foaled by night, and the foale was found alive next morning by the mare’s side.”

* Harvey Exercit. lxxiii. page 492.

† Harvey, loc. cit.

We might easily multiply instances of the like kind, but these we trust will be sufficient to prove that conception has taken place where the hymen was entire, and consequently, where the penis did not enter the vagina to eject semen into the uterus, to form of itself a fœtus, according to the opinion of one set of theorists; to mix with the female semen as taught by a second; to moisten the womb and by its aura impregnate the ovum, agreeably to a third; nor to travel through the fallopian tubes to the ovaria in conformity with a fourth.

Besides, Harvey and De Graaf dissected animals at almost every period after coition, for the express purpose of discovering the semen, but were never able to detect the smallest vestige of it in the uterus in any one instance.

We are however well aware that Ruysch has asserted, in the most unequivocal manner, that he found the semen in its gross white state in one of the fallopian tubes of a woman, who died very soon after, or during the act of coition.—But we conceive that this able anatomist must have been deceived as to the nature of the substance he found in the tube, and that it was not really semen: our reasons for thinking so are, first, that the semen after it has escaped from the penis, very quickly loses its albuminous appearance, and becomes as thin and as transparent as water. Secondly, if it be even admitted the semen has effected a lodgment within the uterus, what power exists there, to transport it in its original form to the fallopian tubes? we know of no such power.

It may however be urged, that the fallopian tubes have the power of absorbing, and by this means would be able to take up the semen, and consequently, it might be found in them.

But several important objections may be made to this opinion. First, How will the openings or mouths, if you please to call them so, of the tubes come in contact with the semen, or, in other words, how will the semen get to them, since it must occupy the lower part of the uterus, and consequently be at least an inch from them? Secondly, the structure of the tubes is such, as forbids us to suppose absorption to be a part

of their use. Thirdly, it would be assigning two offices to them, diametrically opposite to each other; first, to absorb and convey the semen to the ovaria; then to seize the impregnated ovum or ova and carry it or them to the uterus. Need we say this is absurd? we have no analogy in the human body that we are acquainted with to support it.

We are therefore inclined to think, nay we are certain, that Ruysch was mistaken; some alteration in the natural secretion of the parts was mistaken for semen; this was nowise difficult for him to do, as he had a particular theory to support—and more especially, as this supposed discovery made so much for it. It is not merely speculative, when we say that some change in the natural secretion of the parts may have been mistaken for semen; for we have the testimony of Morgagni on our side. He tells us he has seen similar appearances in several instances in virgins and others, who had been subject during their lives to leucorrhœa. Ruysch's subject, though not a virgin, may have yet been troubled with this complaint.*

After having thus, we believe, rendered it more than probable that the semen never passes into the uterus, and in doing this, removed the objections founded on the contrary belief, to the possibility of superfætation; let us proceed and see how we can support the idea of its taking place, when absorption from the vagina is admitted as the means, by which the male semen is applied to the ovaria.

This absorption may be effected in one of two ways; first, either by the common absorbents of the vagina taking up the semen and going the route of circulation; or secondly, by a particular set of vessels which we shall call feminal absorbents, and which have a direct communication with the ovaria. We are inclined to believe it to be in the latter way; as it would seem to agree better with the general simplicity of nature. No

* Morgagni indeed expressly tells us, when speaking of the natural secretion of the fallopian tubes, that it had been mistaken by some for the semen virile.

See Morgagni Epist. xxvi. Art. 13.

one to be sure has ever demonstrated these vessels (or as far as we know intimated a belief of them:) but this does not do away their existence, or invalidate our opinion of them. No one has yet ever shewn the lymphatics of the brain; yet it is admitted on all sides they exist; no one has ever traced them on the amnion; yet there is every reason for supposing them plentifully spread upon it; no one has ever followed them into the substance of bones, yet we have abundant proof of their constituting a part of them; no one has ever developed the muscular fibres of the uterus, yet the phenomena of labour puts it out of all doubt that it possesses them.

We shall therefore, notwithstanding we cannot demonstrate them, take it for granted they exist. We suppose them situated just within the vagina; some may be even external to it, and just within the labia; most probably they are in some instances pretty abundant here, as we see conception taking place when the semen could only have been applied to these parts. After the semen has been thrown from the penis into the vagina, it is confined there a longer or shorter time by means of the rugæ; these rugæ answer a double purpose, first, they serve to retain the semen that it may liquefy and more easily spread over the surface of the vagina; and, secondly, by their means a much larger surface is offered to be absorbed from. It is more than probable that these are the real uses of the rugæ. They may perhaps contribute in a degree to increase venereal pleasure, but this is certainly not their only use as some have imagined; for the doe, according to Harvey, has them in abundance; and he affirms, she always takes the male with reluctance and seeming pain. Moreover, we see immodest women enjoying the venereal congress, when their vaginas, from the long continuance of their debilitating habits, have the rugæ destroyed.

It may be asked, if there be this particular set of vessels within the vagina for the express purpose of taking up the semen, why do they not also absorb the matter of gonorrhœa or lues, and thus produce the destruction of the ovaria by conveying

it to them? To this we might answer, that, such may be their economy or dispositions, that they are only roused to absorption by their own particular stimulus, namely, the male semen.

This arrangement is not unique; we have many instances of this kind in the animal system; thus, light admitted to the tongue produces no sensation; yet let fall upon the eye, powerfully affects it; the vibration of a musical chord, or the tones of a flute, induce no change on the eye; but the ear is instantly influenced by them. But perhaps a more striking and just example may be taken from the economy of the lacteals of the intestines; they refuse admission to the excrementitious parts of our food, or in other words are only excited to action by their own proper stimulus, namely the chyle. It perhaps may be objected here, that various other substances are taken up by them besides chyle, such as the colouring matter of madder, mercury, &c. But we must recollect, that mercury never has been detected in the circulatory system; and Dr. Physick's experiments* go very far to prove it never is taken up. As to some other substances, we grant they may be, but must believe that, they either are not in sufficient quantity or quality to make the chyle lose its peculiar stimulus. Nay, perhaps the arteries and veins may be justly considered in point; as we think it more than probable that, no other fluid than blood would influence them to carry on the circulation. And we have arrived almost to a certainty, that no fluid save the male semen, will influence the ovaria so as to produce the phenomenon of a conception. It is true there are instances upon record, of hair and teeth being found in the ovaria of virgins, which might seem to contradict this belief; Dr. Bailliet† and others furnish us with examples of this kind; but in these cases we agree with the Doctor that they are not the produce of conception; since, agreeably to Ruysch,‡ they have also been found in a man's stomach; if they are thus accidentally pro-

* In a paper read before the Academy of Medicine.

† Morbid Anatomy, page 265.

‡ Ruysch, Tom. II. Aversar. Anatom. Decad. tert.

duced, they may with as little surprize be formed in the ovaria as elsewhere : we therefore cannot admit them as exceptions to this last position.

Since then we know, that certain parts of the body obey only certain or specific stimuli, why may there not be a set of vessels that are obedient only to the stimulus of the male semen? for our own part we see no difficulty in admitting the idea.

Is not this opinion strengthened, by observing some women who have been barren with their first husbands, prolific with their second, and vice versa? The semen, in these unsuccessful instances, wanted that sufficient energy to call the seminal absorbents into action.

Besides, the very sudden effect which is sometimes produced by the male semen upon the female constitution, such as violent sickness, retchings, vomitings, nervous affections as they are termed, &c. will scarcely admit of explanation, on the supposition that it must go the tedious route of circulation before it arrives at the ovaria to produce its effects. And it will perhaps be difficult to conceive then, how it can be successfully applied to the ovum or ova, as it must still be contained in blood-vessels, whose sides are impervious in the living animal; whereas, the seminal absorbents most probably terminate on the ova, and thus, as soon as fit, will be subjected to the influence of the male semen whenever absorbed.

However, be this as it may, the male semen seems absolutely necessary to the production of the animal, and is in some way effectually applied to the ovum or ova, and thus produces the phenomena of impregnation.

Should there be but an ovum fit for the male influence, we shall have but one foetus, if two, we shall have twins, and so on. But for the most part there is only one; nature kindly providing against the neglect that must necessarily arise from several being produced at a birth.

It would appear in general also, that a regular period elapses between the perfecting of each ovum; and hence we see women bearing children at stated intervals: for instance, every

thirteen or eighteen months; every two, three, four, five, six, or seven years. Two, three, or four ova may chance to ripen (if we may so term it) at the same time; or in other words, may be in a condition to receive successfully the male influence; then we shall have, as we observed before, a corresponding number of children.

This law of perfecting the ova, however, is not immutable; there may sometimes happen a considerable variation in the term, but when in a condition, may receive the stimulus of the male semen, and this may happen during the residence of a foetus in utero; hence superfœtation. But the time which elapses, for the most part is pretty uniform; and it would appear necessary also, that the first ovum or ova should be displaced before others can be perfected. This is a wise regulation of nature; otherwise, women who have lived long single, or been a long time deprived of commerce with man, would be subject to serious inconvenience; they would be liable to a litter of children. This rule obtains in other animals besides man.*

Let us suppose now, a foetus to be occupying the uterus; the woman to have a subsequent connection with her husband; the semen to be absorbed and to meet with another ovum capable of being influenced by it; what will be the consequence? the ovum will be impregnated, and the ordinary changes will take place in the ovarium; the ovum will escape into the fallopian tube, and through it pass to the uterus; here it will meet with a feeble resistance from the membranes which already line the uterus, and consequently cover the openings of the tube; this resistance will however be soon overcome; either by the ordinary efforts of the tube, or by the ovum resting unusually long, and beginning to develope, obliging the mouth of the tube to open, while it contracts with unusual violence behind, from the stimulus of distention, and thus forces it forward and displaces the slightly adhering membranes, and by

* See Harvey, Spallanzani, &c.

this means will effect a lodgement in the uterus by the side of the other, where it will be as completely developed for the period of its stay, as though it had been placed there at the same instant with the other. It will have its own membranes, water, and placenta; having nothing in common with the other but its nidus.

In confirmation of the above doctrine, we shall beg leave to relate a couple of cases, complete we conceive, in all their parts, to force the belief of the possibility of superfœtation; or in other words, that the cases we shall detail, are really and bona fide cases of superfœtation.

CASE I.

On the 10th October 1799, at 5 o'clock P. M. I delivered a lady of a fine healthy boy after a labour of some hours. After a careful delivery of the placenta, I examined my patient by the vagina, and also by a hand upon the abdomen, to discover if there was another child, (for it was supposed by the lady's friends she was pregnant with twins) but could discover nothing like one. She was therefore put to bed, and enjoyed a sleep of several hours: she was roused from this at length, by severe and regular pains; after they had continued some time she felt something protruding from the vagina: this gave great alarm to her nurse and friends, and I was immediately sent for. When I arrived I found them in the greatest alarm; they supposing it was the uterus which had passed out. I immediately examined my patient, and found, instead of the uterus, an ovum complete. I extracted it carefully and entire. Upon opening the membranes, an embryo of between three and four months presented itself, looking fresh and almost transparent; the funis large, white, and shining; the placenta healthy and entire; the blood on its maternal surface rather florid, a proof it had not long been detached from the uterus; the waters clear, abundant and gelatinous; in a word, every thing looked as though the child had just parted with

life. Those who are in the habit of seeing abortions, very readily distinguish between those which have just been deprived of life, and those which have parted with it a long time; this bore every mark of freshness. I was therefore much struck with its singularity.

The following considerations will, I think, establish beyond doubt that, it was a case of superfætation.

First, the absence of hæmorrhagy during the whole period of gestation; which would not have been the case, had the placenta been any time detached before the period of labour.

Secondly, the ovum having nothing in common with the full-grown fœtus; on the contrary it had its own membranes, water, placenta, &c.

Thirdly, the fresh and sound appearance of the ovum.

Fourthly, it having maintained its attachment to the uterus, after the birth of the other child; or at least it did not descend, so as to be discoverable by a careful examination by the vagina and otherwife, which renders its attachment more than probable, since this must and would have happened by the common tonic contraction of the uterus* after the birth of the other child and placenta; and that the uterus did contract is certain, as no hæmorrhage followed the extraction of the placenta.

CASE II.

A white woman, servant to Mr. H. of Abington township, Montgomery county, was delivered about five and twenty years since of twins; one of which was perfectly white; the other perfectly black. When I resided in that neighbourhood I was in the habit of seeing almost daily, and also had frequent conversations with Mrs. H. respecting them. She was present at their birth, so that no possible deception could have been practised respecting them. The white girl is delicate,

* By tonic contraction we mean that regular and constant contraction whereby the uterus is reduced to its original size, after the distending causes are removed.

fair skinned, light haired, and blue eyed, and is said to very much resemble the mother. The other has all the characterizing marks of the African; short of stature, flat, broad nosed, thick lipped, woolly headed, flat footed, and projecting heels; she is said to resemble a negro they had on the farm, but with whom the mother never would acknowledge an intimacy; but of this there was no doubt, as both he and the white man with whom her connexion was detected, ran from the neighbourhood so soon as it was known the girl was with child.

We might produce other instances of superfoetation from the most respectable authorities, such as Aristotle, Harvey, &c. but suppose the above two sufficient, as it ought perhaps to be more a matter of surprise, why it does not more frequently take place, than that it should occasionally happen; as its occurrence or non-occurrence, entirely depends on the contingency of the sooner or later arriving at maturity, of the ova, and the absorption of semen.

PHILADELPHIA,

October 9th, 1804.

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PHILADELPHIA, Oct. 16th, 1804.

DEAR SIR,

PREPARATORY to your receiving some practical remarks made during my residence in the island of Jamaica, permit me to present you with a short account of the climate, at least as far as it is connected with the cause of diseases.

I am, dear Sir, with great respect,

Your very obedient Servant,

GEORGE FARQUHAR.

DR. JOHN REDMAN COXE.

THERE is, perhaps, no country in the world of the same extent as Jamaica,* which embraces such a diversity of climate; the temperature of the air being not unfrequently, at Spanish town and Kingston, and in the lowlands near the sea coast, from 92° to 95° of Fahrenheit's thermometer at noon; and seldom lower than 80° in the morning, during the summer months; whereas, in many mountainous situations, and in some, within twelve or fifteen miles of the city of Kingston, during the same period of the year, the thermometer is frequently considerably below 70° in the morning, and seldom reaches 80° at noon; and during the prevalence of the strong north winds in the winter months, in some very high situations the thermometer is often as low as from 50° to 55° in the morning, which renders the use of fires not only agreeable, but essentially necessary.—The difference of heat is also very considerable in the morning at this season of the year in the towns and on the plains, although, in the middle of the day, the variation is not in the same proportion. The hottest time is from the first of June till October, when the wind blows from the south east, accompanied occasionally with showers, although in the lowlands, (particularly in the parish of Vere,) adjoining the sea coast on the south side, in some years there is not a drop of rain falls for many weeks; so that vegetation entirely ceases, and the sugar canes are burned to their roots. This is the cause of the extreme irregularity of crops in that district: an estate, which after favourable rains yields from four to five hundred hogsheads of sugar in one crop, in some other years does not make a pound. In this island, as well as over the whole of the West Indies, there is a regular sea breeze, without which, the towns and lowlands would not be habitable.—The uniformity of this breeze is known to be influenced by the sun; it following his course daily from east to west. In Jamaica, it usually sets in from eight to nine o'clock in the morning, increases as the sun approaches the meridian,

* This island is about 170 miles in length and 60 broad, and is situated between $17^{\circ} 44'$ and $18^{\circ} 34'$ north latitude and $75^{\circ} 55'$ and $78^{\circ} 48'$ west longitude.

and then gradually dies away as he reaches the horizon ; being afterwards succeeded by what is termed the land wind, which blows during the night from the mountains to the lowlands in all directions.

It is to be observed that in such of the West India islands as are of small extent and level, the sea breeze continues during the whole of the night. In the lowlands of Jamaica, particularly between Kingston and Spanish town, there are many swamps and lagoons which form ample sources of disease ; the vicinity of these places, is, however, more or less sickly as they are or are not cleared of wood, and exposed to the action of the sun.

In the middle of the island where there are large tracts of swampy land covered with high woods, and consequently impervious to the action of the sun, the endemic is seldom known. As a testimony of this, there is a district, known by the name of Sandy River, situated in the most remote part of the parish of Clarendon, and adjoining St. Ann's, where several very productive coffee plantations have been, during the last ten years, established, and where, in the space of a mile, five or six white families, with several hundred negroes reside ; and although contiguous to these plantations there are large tracts of swampy land to the extent of some miles, yet, as they are covered with high woods, and consequently shielded from the action of the sun, both the whites and negroes in the vicinity, enjoy the most uninterrupted state of health ; so that for swamps to constitute the source of disease, they must be previously acted upon by heat. In the mountainous parts of Jamaica, a prodigious quantity of rain falls in the course of the year, and more particularly in the months of May and October, when the rains are general all over the island. This, necessarily renders June and November the most sickly seasons of the year ; and, as the fatality of the endemic at these times is exactly in proportion to the quantity of rain fallen, and the degree of subsequent heat ; the rains in October continuing longer than those in May, the remittents in November, in ge-

neral assume a worse type than those in June.—During the continuance of the rains there is seldom much sickness, except, occasionally pleuritic and other inflammatory complaints among the negroes: and it is not till the extreme heat has concentrated the marshy miasmata to that degree, which, in constitutions not assimilated to the climate, is productive of the worst species of the endemic, that sickness becomes general. The robust inhabitants being then affected with remittents; while dysentery, intermittents, diarrhoea, and hepatitis, attack those of a more relaxed habit. These are all modifications of the same endemic, occasioned by difference of constitution only, and not by any difference in the miasma. The period of the year most healthy, is from the first of December till April: during this time, the cold north wind blows, the atmosphere is clear, and the effects of the autumnal rains having ceased, those, who have suffered from indisposition during the month of November, begin to recover, and by March are entirely restored to health. The cold in the mornings during the prevalence of the north winds, is, in the mountains particularly sharp and piercing; and the use of flannel next the skin, is, especially to such persons as are much relaxed either by the climate, or by sickness, extremely necessary. Indeed the transitions from heat to cold in this climate are so sudden, that those who have ever been subject to hepatic or other visceral obstructions, would do well to make a flannel or calico shirt a regular part of their dress at all times of the year. It is unnecessary to observe, that if an European can make his election of the time of arriving in a tropical country, during the early part of January, or in December, is the proper season; as, before the recurrence of the subsequent summer heat, he will be in some measure, assimilated to the climate; and should he arrive at any other period of the year, a residence for a few months in the mountains, would be extremely beneficial: however, let his prudence or precaution be what it may, he must expect, sooner or later, a seasoning fever: to protract the time of its approach, is, however, a matter of great moment, as the longer

he remains in the climate before the attack, the milder in general will be the disease. In addition to the precaution of a short residence in the mountains, should he arrive during the warm season of the year, intemperance of every description is to be avoided, particularly in the use of spirituous liquors, all exposure to the sun in the middle of the day, and to the night air; violent exercise, or any thing that will produce much excitement in the system, is also highly pernicious.—Upon a person's arrival in the tropical latitudes, he should be plentifully blooded and purged: and a repetition of this, before landing, will be particularly proper in such as are of a full habit of body. In short, what will contribute to the safety of an European stranger in this climate, is, as speedily as possible, to reduce his constitution to the standard of that of the inhabitants; and, as experience from observation, has clearly pointed out the degree of danger in the tropical endemic, to be exactly in proportion to the vigour of the patient, to remove plethora seems an object of the first importance. The uniformity of perspiration should be promoted, by bathing frequently in water rather warmer than blood heat, and the body should be kept in a lax state; costiveness is not only to be avoided, by the frequent evacuation of the contents of the bowels, but, in full strong habits, purgatives of the most active nature should be administered, so as to produce considerable excretions from the vessels of the intestines, which relieve the blood-vessels much, and which are a species of depleting, perhaps, better adapted than any other, to reduce the habit of a robust European to a state congenial to health in a tropical country. When we reflect upon the dreadful mortality which has, for the last ten years, occurred among European strangers in the towns and on the plains of Jamaica; so that one-half, and in some years two-thirds, of those who have, arrived, and not taken up their abode in the mountains, have in the course of the first six months fallen victims to the climate, this subject must appear of the first importance. During the prevalence of the north winds in the early part of the

year, the whites as well as the negroes, are particularly healthy; so that in the months of February and March, it is not at all unusual to have the plantation hospitals shut up for many weeks. Towards the end of April, the heavy clouds which begin to make their appearance upon the tops of the mountains, preface the approach of the future rains; the sea breeze is neither so regular nor powerful at this time, which renders the heat extremely oppressive. This continues till near the middle of May, when the rain begins to fall in torrents from the mountains, accompanied with most violent shocks of thunder and lightning.

At this time, there is seldom much sickness among the whites, except slight bowel complaints.—Pleurisies, and other inflammatory diseases, however, are very prevalent among the negroes; but it is not till the extreme heat in June has produced exhalations, from the moisture occasioned by the prior rains, that the endemic becomes general. The sky is clear, and the sea breeze blows at this season with unusual violence; and, as I mentioned before, the type of the endemic depends in a great measure upon the quantity of rain fallen, and the degree of subsequent heat; and the rains in October being of longer duration than in May, so the endemic in June is generally much milder than in November; although, among newly arrived Europeans, fevers of the very worst kind not unfrequently prevail at this time. The three succeeding months of July, August, and September, certainly form the warmest period of the year; and as the land wind is then extremely mild, the nights are unusually oppressive; but as the sea breeze blows with its ordinary force during the day, the heat is rendered more tolerable. There are occasional showers at this time, and though they seldom give rise to much sickness among the more robust inhabitants, those of a more relaxed habit are frequently affected with diarrhoeas, and other bowel complaints, occasioned by an increased secretion of bile; and these months are as fatal to the European stranger as any other during the course of the year. August, Septem-

ber, and October, form what is called the hurricane season, as, although hurricanes do not happen every year, they are always during these months. Towards the end of September the air becomes equally oppressive as in April; and the clouds appear on the mountain tops, indicating the speedy recurrence of the autumnal rains, which commence without any regularity; sometimes at the latter end of September, and at other times not until the middle of October, though at the commencement of this month they are usually expected. They generally set in, as those in May, with heavy showers from the mountains, attended with lightning and thunder, though the latter is not so loud as what accompanies the spring rains.

From the immense quantity of thunder and lightning which occurs in tropical countries, it is astonishing how little injury is produced; as in the course of seventeen years, during which I resided in Jamaica, I do not remember more than three or four accidents from that cause. The autumnal rains generally continue till the end of October, or some time early in November, when the strong north winds set in. During the continuance of the rains, the negroes are particularly liable to inflammatory complaints of the lungs, and affections of the bowels. The month of November, as has been already observed, is the most sickly period of the year: the inhabitants of all descriptions, as well as strangers, suffering from the effects of the preceding rains.

Remittents at this time rage among the more robust inhabitants and newly arrived Europeans, with extreme severity; and those, who are debilitated from a long residence in the climate, are affected with dysentery, diarrhœa, and hepatic complaints. The putrid sore throat is also occasionally epidemic at this season, although its attacks are confined chiefly to children and females of a relaxed habit.

Having now given a short but very imperfect description of the climate of Jamaica, I shall add a few words on that part of the island where I resided, viz. the mountain district of the parish of Clarendon, situated near the centre of the island.

The temperature of the air is here, considerably cooler than that in the lowlands, though not so cold as many mountainous situations in Jamaica; the thermometer being generally, in the morning, from 70° to 75° , and seldom higher at noon than 80° . This temperature agreed extremely well with the inhabitants; and newly arrived Europeans generally suffered much less in the seasoning fever than on the lowlands. The high district of Clarendon embraces a large tract of country, containing mountains of considerable height, interspersed with fertile vallies, many rivers, and innumerable springs of the finest water in the world. In the vallies, extensive fields of the luxuriant sugar cane, present a most agreeable prospect; the works for manufacturing the sugar, with the buildings for the accommodation of the white people and negroes, appearing at certain distances as so many scattered villages.—Groves of the majestic cocoa-nut tree, with those of other tropical fruits, occasionally vary the prospect, while the mountains are covered with extensive coffee fields, which, when the fruit is advancing to maturity, present a most beautiful appearance. The diseases in the mountain district of Clarendon, were few in number among the whites. Remittents, intermittents, dyspepsia, diarrhœa, dysentery, hepatitis, and other inflammatory complaints, comprised the whole catalogue; and they were generally, infinitely milder than in the lower parts of the island. There are many diseases to which the inhabitants of cold countries are liable, which, in warm climates are unknown. Phthisis, so fatal in cold latitudes, rarely occurs in Jamaica; and I never met but with one case of calculus in the bladder, which the gentleman brought from Europe with him; and, although he has been now upwards of ten years in the island, from a little time after his arrival, it has given him no trouble. Mania is a very rare disease in Jamaica, and cancers occur but seldom: of the latter disease I only remember four cases, which were in persons of extreme advanced age, and who had for thirty or forty years used only water as their drink. Would not this imply that cancer had for its source something with which

water is impregnated? The dry belly-ache, which half a century ago made such havoc in Jamaica, is now almost unknown. The gout sometimes occurs here, but not so generally, nor is it so formidable, as in northern countries.

The small pox and measles have been frequently epidemical in Jamaica, but as the inoculation of the former disease is now superseded, by the invaluable discovery of vaccination, we may reasonably hope it will soon be banished from the island. Rheumatic affections not unfrequently occur in Jamaica, and the ulcerated sore throat is often epidemical and extremely fatal.

Females arrive sooner at puberty in tropical countries than in Europe; they menstruate earlier, and are subject to uterine weaknesses, and such other diseases as depend upon a relaxed habit. White children are uncommonly healthy here, till they arrive at the age of five or six years; they soon afterwards, however, become relaxed and debilitated, and suffer from visceral obstructions. Rickety or deformed children are seldom to be seen in Jamaica, and women undergo the process of parturition with little inconvenience, and cases of difficult labour seldom occur.

The lues venerea is a disease to which the inhabitants of all descriptions are liable, and which is, in innumerable instances among the negroes, hereditary.

Having now pointed out the diseases to which the white inhabitants are subject, as well as those from which they are exempted, in warm climates, in general; I will add a few words on one which has occasionally prevailed among newly arrived Europeans, soldiers and seamen, in the towns, and in some particular situations in the lowlands for the last ten years, and known under the terrific name of yellow fever. This disease made such havoc for some time, that it excited the most serious alarm among the inhabitants of all descriptions; being then believed to be of a highly contagious nature, which, if true, would have soon depopulated the whole island. Experience, however, soon proved the contrary: the attendants of

the sick, whether white persons already assimilated to the climate, or people of colour, having universally remained free from the disease; newly-arrived Europeans being alone subject to its ravages. Medical writers inform us that this is by no means a new disease, but the same to which Europeans have always been liable in a greater or less degree, on their first arrival in the West Indies. That it has been unusually prevalent and fatal in Jamaica since the year 1793, is certain; but this must be referred to some particular constitution of the atmosphere, which induces endemics more at one time than another: and it is to be observed, that when this disease was so fatal in 1793, and the three subsequent years, there was an unusual influx of European strangers, particularly of the army and navy, occasioned by the war. But, although the mortality during those years was exceedingly great, yet it was confined to the towns, and particular situations on the plains only. In the mountain parts of Jamaica, even among the newly-arrived Europeans, this complaint was scarcely known; and, although I had an opportunity of attending some hundred young men in their first indisposition, in the district where I resided, I do not recollect ever meeting with a case of the true tropical continued fever. A disease of a very different nature is said to have been brought to Jamaica with some Irish regiments in the year 1796; this was the common typhus, jail, or hospital fever, and was highly contagious: it carried off a great number of the soldiers before their arrival, and continued its ravages for some time after. The two regiments of Irish brigade alluded to, buried in seven months more than one-half of their officers and privates. Persons of every description connected with the shipping, and lately from Europe, were subject to this disease, which was much more rapid in its progress, and more generally fatal than the tropical continued fever. It gradually, however, disappeared, and by the end of the year not a case of it was to be seen. The negroes are liable to a much greater variety of diseases than the white inhabitants; as, besides those before enumerated, they suffer from yaws, coco

bay, Guinea-worms, ulcers, king's evil, and dirt-eating: they are also, either from accidents or cold, peculiarly liable to tetanic affections; from the former causes, this complaint is universally fatal; from the latter, it generally yields to a combination of the usual remedies. The trismus nascentium or locked jaw, also makes dreadful havoc among the negro children, from the 7th till the 9th day after their birth, and by which one-half of those born in the course of the year, are not unfrequently carried off, although I do not remember an instance of its occurring in a white child.

In Jamaica there are several vegetable poisons which perhaps may not improperly be mentioned, viz. the manchineel apple, night-shade, dumb cane, the bark of the cabbage tree, and bitter cassada. It is well known, that although the farinaceous part of this last root forms excellent bread, the expressed juice is a most deadly poison; a certain antidote is, however, now, so universally known, that death, from its being accidentally swallowed, seldom occurs: this was discovered in rather an extraordinary way; it being observed that hogs, though immediately poisoned upon eating the roots after their being previously washed, suffered no injury from what they turned out of the ground, and eat with the surrounding earth; when therefore it is known a person has eaten bitter cassada, a quantity of common earth is immediately mixed with water, and swallowed, and repeated every ten or fifteen minutes, till all the effects of the poison have ceased: a few hours after, a dose of castor oil, or Glauber's salts, is given to empty the stomach and bowels of the earth; and the person next day is perfectly free from complaint. Though there is no doubt any alkali would be equally efficacious as earth, yet, it, being always the most accessible, is made use of, and never fails in its effect. I have met with some hundred cases of persons poisoned with this root, and on some of whom it had produced the most alarming symptoms, such as violent convulsions, cold

sweats, intermitting pulse, with every appearance of approaching death; yet, in less than half an hour, a few draughts of the earth and water, have removed every complaint.

Description of DR. PHYSICK'S improved Gorget. In a letter from R. B. BISHOP, Surgeon's Instrument-maker, to DR. COXE, (with a plate.)

SIR,

FINDING that the Gorget constructed according to a plan communicated to me by Dr. Physick some time ago, has met with much approbation, I take the liberty of sending you a drawing, together with a description of that instrument.

In all gorgets (even the most modern), much difficulty is experienced in forming a fine edge contiguous to the beak: and, as I understand it is desirable, that that part of the instrument should be very keen, because with it the section of the soft parts is commenced, and continued through the whole of the parts to be divided; it will therefore appear that this instrument possesses every advantage that could be derived by obviating that difficulty, and enabling, not only the instrument-maker, but the surgeon himself, to form an edge with complete ease, on the whole of that part of the instrument which is intended to cut. It has also the advantage of being more portable and less expensive than the common sets of gorgets.

Fig. I. A perspective view of the instrument; the blade a little open to shew in what manner it is connected to the stem and secured by the screw.

- a. The blade.
- b. The stem.
- c. The screw.
- d. The beak.
- e. The cutting edge.

Fig. II. The stem of the instrument, comprehending the haft and beak.

f. A groove, gradually deepening to admit the point of the blade, fig. III.

g. A perforation in the direction of, and to admit the peg *k*, as a further security, and to prevent injuries to the point of the blade by the upper part of the groove *f*.

h. The opening in the handle admitting the blade.

Fig. III. A back view of the blade as relieved from the stem. It is common to furnish each instrument with five or six blades of different sizes.

i. The point.

k. The peg.

l. The cutting edge—the curved line shewing the manner of grinding it away to form the edge.

m. The female screw.

Fig. IV. A section of the gorget of the natural size, describing the angle formed by uniting the blade and stem.

The size and angle of the blade and haft of this instrument, are the same with Mr. Cline's gorget. The drawing represents it of little more than half its size.

I am, Sir, with respect,

Your most obedient Servant,

R. B. BISHOP.

PHILADELPHIA, *November 1st*, 1804.

Description of DR. HUTCHINSON'S improved Splints, in a Letter to the Editor, (with a plate.)

SIR,

THE difficulty of managing simple oblique, and compound fractures of the leg, where both the tibia and fibula have been broken, every surgeon has experienced. It has been my lot to have several such cases: I soon found that a flexed position of the limb was not the most favourable to insure success. The method of Dessault appeared to be more fa-

tisfactory than that of Pott, but even it will admit of some improvement.

In those cases of fracture which came under my own notice, it was evident, that the common splints, which I then used, kept up no extension whatsoever, though they were applied with great care. The most trifling action of the muscles was sufficient to displace the broken ends of the bone, notwithstanding my patients had been bled repeatedly.

Thinking that these difficulties might be avoided, by the application of an apparatus capable of keeping up a powerful extension, such a one was constructed, and made use of in the next case which I attended. The following is a description of it. The patient being placed on his back, with the fractured limb resting on a pillow, two pieces of tape were bound on each side of the leg about three inches from the knee, by a common roller; the ends of the tape projecting some distance above and below the roller. As near as convenient to the ankle, another bandage is to be applied, having under it two pieces of tape, one on each side of the leg. The splints are next to be fixed on. A good idea of them can be obtained by examining the plate. Fig. I. represents a limb with the splints, bandages, and tapes applied; a, the bandage near the knee; b, the bandage at the ankle; c c, pieces of tape under the bandage, and on the inner and outer side of the leg. Fig. II, represents one of the splints separate from the limb; a, points to four holes at the upper end of the splint, through which the pieces of tape, secured to the sides of the leg by the roller, near the knee, are to pass, and be tied as seen at d, in fig. I.—b, is a hole near the lower end of the splint, through which the piece of wood, fig. III, is passed, as represented at e, in fig. I, and to which the pieces of tape under the roller at the ankle are tied, as in f, fig. I, for the purpose of extending the limb.

In the apparatus of Dessault, the same parts of the leg are used for keeping up extension and counter-extension, as in the one just now described; but his splints and bandages are trou-



Fig. 4.



Fig. 2.

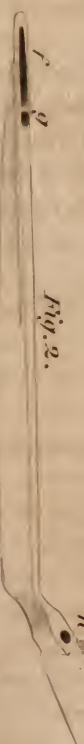


Fig. 3.

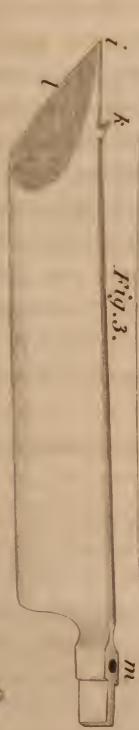


Fig. 3.

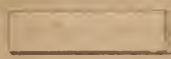


Fig. 2.



a

b





blesome to both patient and surgeon, and are not well calculated to insure a straight limb. The method proposed, possesses two advantages over any other hitherto adopted: by it, the extension can be kept up in compound fractures, whilst the surgeon is applying the necessary dressings to the wound. The patient therefore is saved all that pain which he would have to suffer from a removal of bandages, splints, &c. as in the common practice. We can also, in simple fractures, ascertain merely by turning our eyes towards the leg, the least displacement of the bones: when the common splints are used, and the eighteen-tailed bandage is applied, we are under the necessity of removing them to form a correct idea of the state of the limb.

The apparatus which has been recommended, some of our first surgeons have used with the happiest effects. I have witnessed its success in a number of cases.

It is scarcely necessary to observe, that the application of it would be improper during the existence of inflammation. About the 10th day after the fracture has happened, it will be found most useful.

JAMES HUTCHINSON.

PENNSYLVANIA HOSPITAL,

August 6th, 1804.

Of the Use of Blisters in checking the Progress of Mortification.
By PHILIP SYNG PHYSICK, M. D.

THE practice of curing erysipelatous inflammation by the application of a blister over the inflamed part, originated, as far as I know, with the late Dr. Joseph Pfeiffer. From having employed blisters in the treatment of that complaint with great success, I was induced to suppose some years ago, that they might also be used with advantage in arresting the progress of mortification.

The first opportunity I had of applying a blister with this intention, was in the case of Captain Stokes, a gentleman between forty and fifty years of age, whom I was desired to visit, in consultation with Dr. Rush, in January 1803. After an inflammation about the anus, which had been supposed for several days by the patient, an attack of piles, a mortification was observed to have commenced in the perineum, and on the side of the scrotum. At my first visit I proposed the application of a blister, to extend from the edge of the mortification in the perineum, backwards over the buttocks; this being agreed to, was immediately applied; the following day, when the blister was dressed, we were both well satisfied with its effect, as it had prevented the mortification from spreading backwards; but so extensive was the mortification of the skin and anterior part of the scrotum, which appeared to extend upwards in the course of the spermatic chords towards the abdomen, that his recovery was not to be expected. After a few days he died.

Dr. Rush being struck with the good effect of the blister in the preceding instance, has lately employed the remedy in a case of mortification, the history of which is contained in the following letter:

DEAR SIR,

I WAS called upon by Dr. Bleight, on the 29th of last July, to visit with him, Captain R. A. who, in consequence of applying a handful of the *polygonum persicaria*, instead of paper, to a common use, after going to stool, was affected with an inflammation in the extremity of the rectum, which extended around the adjoining parts, and along the perineum, so as to affect the integuments of the scrotum. Bleeding and other depleting remedies had been used to no purpose, in order to cure it: a partial mortification had taken place. I concurred with Dr. Bleight in advising leeches to the sound parts; and recollecting the high terms in which you spoke of the efficacy of

blisters in preventing the progress of mortifications, in our consultation, in the case of Captain Stokes, in January 1803, I advised their application to all the diseased parts which had not put on a gangrenous appearance. They had the wished-for effect; the mortified parts were afterwards cut away, or gradually sloughed off; and, under the faithful and patient subsequent attendance of Dr. Bleight, the Captain happily recovered, and now enjoys his usual health.

In the most dangerous state of his disease, we gave him bark; but its distressing effects upon his system obliged us to lay it aside.

From, dear Sir,

Your sincere Friend,

BENJAMIN RUSH.

DR. P. S. PHYSICK.

Nov. 15th, 1804.

On the 24th October 1804, I was desired to meet Doctors S. P. Griffitts, Wistar, and Strattan, in consultation, concerning the case of Mr. Charles French, who was afflicted with a mortification of the foot, which was advancing daily upwards, unchecked by the liberal use of the bark. On the 27th October, I proposed the application of a large blister round the leg, below the knee; this being agreed to, was applied in the evening; when dressed the next morning, it was observed that the mortification had not increased:—encouraged by the benefit derived from it, I proposed on the 29th, the application of a second blister, to cover all the living parts below the edge of the first. This blister also rose well;—in a few days a distinct line of separation between the living and dead parts was observed; the blisters were dressed with a mixture of basilicon and spirit of turpentine. I avoid relating further particulars of this case, as Dr. Griffitts proposes to publish a circumstantial detail of it.

Since writing the above, I have been favoured with the following history of a case from Dr. Church, containing addi-

tional testimony in favour of the use of blisters in arresting the progress of gangrene.

“ ON Monday, ——— of November, I was desired to visit Mrs. Y. in the country, about sixty years of age, of a fair complexion, and delicate constitution; has had several children, and heretofore enjoyed good health.

“ She had been taken on Saturday with frequent chills, with irregular febrile flushings, pain in the limbs and head, which continued increasing for nearly thirty-six hours before I saw her, when she was delirious, with flushed countenance, irregularly frequent and tense pulse, tongue furred, respiration frequent, with great general uneasiness.

“ The loss of ten or twelve ounces of blood, with a saline cathartic, abated in some degree the febrile symptoms. The delirium still continuing, in the evening, blisters to the wrists, with a continuation of the saline mixture, produced an alleviation of all the symptoms, so that towards morning she had a few hours sleep. When she awoke, she was perfectly collected, complaining of great soreness in her body and limbs, particularly in one ankle, which she said was painful; her skin was cool, and her pulse frequent but soft, easily yielding to the least pressure. The family informed me that the ankle she complained of, had had an ulcer on it for fourteen years, which had been brought on by a slight injury after one of her deliveries; that it had within the last two weeks been healed. On examination, the ulcer appeared to have been of the size of a dollar, above the internal ankle, which was now quite livid, with some swelling around the edges, having the appearance of a vesication, and a deep purple blush, extending an inch or two beyond it, attended with a distressing burning sensation. The leg at this time was quite cool and somewhat swelled.

“ The medicines she had been taking were omitted, and the tonic cordial plan substituted: the bark, wine, and opium were administered freely, and cataplasms of bark with yeast, were applied to the part and changed frequently.

“ This treatment was followed until Thursday, with an increase of the lividity and vesications on different parts of the ankle, filled with a bloody-coloured fluid.

“ On Thursday the appearances were indeed unpleasant; the lividity of the ankle had extended, and the deep purple colour of the skin was near the middle of the leg, with very great tumefaction. The pulse was frequent, skin cool, tongue dry, and much apparent insensibility of the limb. The bark was still continued internally, and the fermenting cataplasm of powdered carbone, with meal, honey, and yeast, was applied in large quantities over the part affected, and was repeated or changed very frequently. This plan was rigidly adhered to all Thursday and Friday, changing the bark (which now had been taken in such quantities as to sicken the stomach), for some other tonic.

“ The deep and burning redness, still, however, progressed towards the knee, with an increase of those unpleasant vesications; the pulse on Saturday was much more frequent; the skin cool; tongue dry, and covered with a dark-coloured crust; very great restlessness, with constant incoherent muttering.

“ In this situation I recollected a conversation I had had some time since with Dr. Physick, in which he mentioned the good effects he had experienced from blistering, in a case of gangrene. The critical and dangerous state of the patient required something to be promptly done. The blister was proposed with considerable hesitation, as I could not recollect in what stage or what species of gangrene Dr. Physick had used it.

“ A large blister was, however, applied on the inside of the leg below the knee, one part on the healthy portion of the leg, and the remainder immediately on the diseased part. After twelve hours it rose very well, and, contrary to what I dreaded, assumed a very pleasing aspect, and without the least increase of disease. The pulse still continued frequent and the skin cool, although the patient in every other respect was much more composed.

“ On Sunday, the leg was much more favourable; the lividity and vesication had not increased, and the tumefaction which was very considerable, had subsided much. The foot,

though much swelled before, did not, until this period, shew the least disposition to take on diseased action. It now became covered with the deep purple shining appearance, with a distressing burning sensation, which, together with the increased tumefaction, occasioned much uneasiness. The bark, with elixir of vitriol, was persevered in freely, and from the pleasing effects of the blister, in arresting the rapid progress of the disease in the leg, I applied a large one covering all the upper part of the foot, including that part of the ankle where the disease first began. The effects were equally as pleasing as in the first instance, producing an almost immediate cessation of the progress of the disease.

“ The parts of the ulcer where the disease first began, separated to some depth; the cuticle from below the knee separated, and in some places on the leg; and the separation extended even through the cutis and adipose membrane.

“ The tumefaction of the leg gradually diminished, and the patient is completely free from every danger.”

Impressed with an idea that blisters will be often found useful in preventing the progress of mortifications, I have been induced to publish the preceding cases as early as possible.

PHILIP SYNG PHYSICK.

Philadelphia, 24th November, 1804.

An Account of the Effects of LABOR in the Cure of Pulmonary Consumption. In a Letter from the Rev. DR. SAMUEL K. JENNINGS, of Bedford County, Virginia, to DR. BENJAMIN RUSH.

DEAR SIR,

THAT theory only is to be considered a rational one, which is supported by facts, and will admit of the most extensive practical utility. If the following facts can be of any service to you, it will afford me singular satisfaction to have communicated them.

I myself furnish the first case. My maternal grandmother, my mother, five of her sisters, and four of her brothers, my sister being my mother's first child, and a brother next in succession to me by birth, all of them have been swept off the stage of life in the course of my recollection, by the fatal disease Phthisis Pulmonalis. From my youth up to the age of twenty-nine, I was sensible of great debility of the lungs, and was never, during that time, able to call aloud, read, or sing, with the ease which is common to other people. I had generally lived a studious and sedentary life, except that I had been the two last years engaged partially in the practice of physic. An offer was at that time made me to take charge of an academy. For the sake of gaining more leisure for the purpose of reading and study, I accepted the offer. In the mean time I had been three years occasionally employed in speaking publickly upon religious subjects. From this last engagement I considered my lungs to have gained some strength. It followed, however, that study and confinement did less agree with me than formerly. I could perceive a daily declension, and at length, having been caught in a moderate rain, I was seized with a very severe and obstinate cough. I was bled again and again to no purpose. After considerable depletion, opium was tried, but in vain. Debility, the cough, and every inflammatory symptom increased. I had recourse to riding, took a journey of several weeks, and continued to let blood as often as the pains were severe, but still in vain. In the mean time I obtained your Inquiries, and immediately turned my attention to the subject which most concerned me. After having carefully read that part of the work, I pursued the following plan, viz. I let blood, moderately, every third day, especially if affected with inflammatory symptoms, until, with the previous blood-lettings, I had been bled fifteen times in the course of five weeks. By this time, I was much reduced, but my cough was no better. I then had recourse to the use of the AXE, and to LABOR of the severest kind. I could not at the time repeat ten strokes without rest. It would seem in the first instance to increase my cough. The result was, that in two weeks I was nearly recovered. Finding much amend-

ment, I grew remiss in my labor, and in a few weeks relapsed, and was nearly as ill as before, for I lost ground rapidly in the second instance. Two bleedings and similar LABOR, however, finally restored me to good health, and I can now sing aloud, and on a sharp and high key; can speak two hours together; and, in one word, I consider myself freed from every symptom of that disorder.

My wife furnishes a second recent case. Her mother, and one of two only sisters, have died of the same disease very lately. She was in her youth an active and industrious woman, and of course took a good deal of laborious exercise. But for several years past she has been declining, so that, from a fleshy and healthy woman, she became a pale, sickly, emaciated, valetudinarian. The last summer she brought a fine son. By suckling him she declined in an unusual degree; was at length taken with a cough, chills at noon and in the evening, night-sweats, &c. I bled her as often as I could find her pulse tense; advised her (contrary to her inclinations) to use *SERVILE LABOR*. She took my advice. Her cough is nearly removed, and I have no doubt but she will recover.

I should not have considered these cases of sufficient importance to call your attention, had it not been for the hereditary circumstances attending them.

In my own case they are indeed striking, for not only the persons named above, but a number of my maternal cousins have died of the same disease.

I shall offer a short reflection or two, drawn from my own case. In the first place, I am persuaded that hard labor, if employed in an early stage, can cure the hereditary predisposition in some cases.—Hence I further conclude, that consumptive parents ought never to choose sedentary or light employments for their children.

Secondly, I conclude that although a trotting horse may afford sufficient exercise for many, yet labor will be far more successful.

And lastly, in all cases, the labor should be such as to require considerable efforts on the part of the patient. I labor-

ed continually, and rarely with sufficient intervals to refresh myself by rest.

I am sincerely,

Sir, your most obedient,

SAMUEL K. JENNINGS.

October 25th, 1804.

To the Editor of the Philadelphia Medical Museum.

Observations on the Mode of Refining Camphor. By JAMES WOODHOUSE, M. D. *Professor of Chemistry in the University of Pennsylvania, &c.*

November 26th, 1804.

SIR,

IT must afford sincere pleasure to every true friend of America, to view the establishment and rapid increase, of several branches of manufactures, in the United States.

Too long have our citizens been dependent upon other nations, for many articles, to purify or fabricate which, requires but a small capital, and a very slight degree of chemical knowledge.

Among the subjects which we may consider as coming under this head, is the obtaining of refined camphor, from the raw material.

Crude camphor is imported by our merchants from Canton and Batavia, where it is bought for fifty and seventy-five cents, and sells in this country, from a dollar, to a dollar and eleven cents a pound.

Eight years since, the refining of this article, was confined to two druggists in the United States, and at this time there are not more than eight persons, who accurately understand the process, all of whom keep it a profound secret.

The method was for a long time, known only to the Dutch, who value and conceal all discoveries, in proportion as they are connected with the art of making money.

It is not taught in any of the elementary works of Fourcroy, Chaptal, Lagrange, Gren, Nicholson or Thomson, nor in any of the Medical Dispensatories.

A tolerably accurate account of the process, may be seen in the French Encyclopædia, and in the twelfth volume of *Ars & Metiers*, by De Machy.

The apparatus necessary for a refinery is simple, does not cost much, and occupies little room.

It consists of a furnace, supporting a sand-bath, glass vessels, and iron, copper or earthen pans.

I. OF THE CONSTRUCTION OF THE FURNACE.

A furnace sufficiently large for one active and industrious man to attend, will occupy the space of eight feet nine inches in length, and two feet six inches in breadth. It must be made of seven cast-iron plates, half an inch thick, thirty inches long and fifteen broad. These plates are to be placed upon eight piles of bricks, parallel to each other, and nine inches apart. The bricks are to be ten inches high, thirty long, and six broad.

Great care must be taken, that the lower sides of the plates meet each other exactly midway on the upper side of the bricks, which should be well covered, with a thick bed of mortar. Bricks serve to confine the sand. When the furnace is connected with a wall, there is no occasion for more than a single row of them: and to obtain a considerable draught of air a chimney should be carried from the fourth plate, with an aperture four inches in diameter, and the flues of the third and fifth plate, may communicate with this chimney. Two separate flues, may be carried from the second and sixth plates, and the first and seventh should enter the second and sixth.

The chimney, if convenient, may be made to enter into that of the house, but if not, it should be about fifteen feet high.

II. OF THE GLASS VESSELS.

The vessels are procured at a glass-house, and are made of green glass. They should be blown as thin as an oil flask. They are of a circular form, shaped flat like a turnip, and have a neck from one to three inches high, with an aperture, from half an inch to one inch in diameter. Their bottoms should be eleven inches broad, and the top ought to be four inches from the bottom.

They cost twenty-five dollars a hundred in Philadelphia.

III. OF THE PANS.

Fourteen pans may be made of iron, copper or earth. Sheet iron is the best material. They should be round, one foot in diameter, with a rim pecked on four inches and a half high, and ought to have two small handles. They cost one dollar a-piece, in this city.

Having prepared this necessary apparatus, the next thing is to make use of it, in such a manner, as to refine the camphor.

Having taken the article out of the tubs, the glass vessels are to be filled two-thirds full of it, and the apertures in the necks, slightly stopped, with paper or cotton plugs. They are then to be placed on the bottom of the pans, and covered near to the base of their necks with sand.

The pans, holding the vessels containing the camphor, are to be carried to the sand-bath, and surrounded near to the top of the rim with sand.

A gentle fire is to be kindled in the furnace, at four o'clock in the morning, and gradually increased, until the camphor melts, which it does when it arrives at 304° of Fahrenheit's thermometer. It will first rise in flowers, which will dissolve, and run down the sides of the vessel. When it has melted, or is boiling, the glass is to be elevated in such a manner that the hot sand, may reach only to the middle of its belly, in order that the cool air may be admitted to the upper surface of the glass, to congeal the camphor as it sublimes.

Having kept it in a liquid or boiling state, from eight to ten hours, the refined camphor will be found, adhering to the upper side of the vessel, and is to be taken from it by breaking the glass while hot, or it may be kept until cool and then broken. The glass is easily separated from it, by means of a knife.

The foul parts which adhere to the bottom of the glass, and which cannot be easily parted from it, are to be broken into pieces, and sublimed a second time, with an additional supply of camphor.

When the crude camphor is of a white colour, or contains little foreign matter, no addition is to be made to it; but when

it is brown or black, one ounce of slacked or quick lime, is to be mixed with every three or four pounds of it. The utility of lime in this operation, is noticed by Margraff.

One man can refine and pack up, from eighteen to twenty-five pounds every day.

If any of the glass vessels holding the melted camphor should crack, which sometimes happens, and which is discovered, by the flowers rising into the air from their sides and tops, the pans containing it are to be immediately removed to a cool place; and if the camphor is found mixed with the sand, the whole is to be put into other vessels, and the operation conducted as before.

The loss in refining one hundred weight of this article cannot be accurately ascertained, as it depends upon the purity of the crude material, and the care in conducting the process. It cannot be very great.

Professor Robertson, in a note to Dr. Black's Chemistry informs us, that in a manufactory in Holland, he saw more than one hundred vessels in a furnace at one time, and that there was but a moderate smell of camphor in the room.*

Hoping that this endeavour to make a very useful process, generally known in the United States may succeed, and wishing you success in the establishment of your Medical Museum.

I remain, dear Sir,

Yours sincerely,

JAMES WOODHOUSE.

References to the Plate.

Fig. I. Is a section of the furnace, supporting a sand-bath. The ash-pit may be separated, from the place where the fuel is lodged, according to the fancy of the manufacturer. The fuel may be either wood, charcoal or pit-coal.

Fig. II. Is the glass vessel.

Fig. III. Is the iron pan, containing one of the vessels.

* Black's Chemistry, Vol. II. 351.

Fig.1.



Fig.2.



Fig.3.





MEDICAL AND PHILOSOPHICAL REGISTER.

FOREIGN AND DOMESTIC.

THE following abstract of Meteorological Observations for six successive years, has been formed, with considerable trouble, on the plan of the ingenious Professor Playfair, as detailed in the second part of the fifth volume of the Transactions of the Royal Society of Edinburgh. I have, however, made six divisions in each month, of five days each, (except the last of those containing thirty-one days, and of February,) instead of three of ten days, as Professor Playfair has done. By making the divisions in these, twice the number, I have considered it less necessary to extend the tables in other respects, as is done in my model.

The column immediately following that of the month and its divisions, shews the highest degree of Fahrenheit's thermometer during each division. The next column points out the lowest degree for the same period. The third column gives the mean temperature of the whole number of observations of each division; and the fourth is the mean temperature of all those means, or of the whole month.

The barometer follows, in like manner pointing out the highest, lowest, and mean points of the mercury of each division, and the mean of those means, or of the whole month, in inches and hundredth parts.

For the most part, these instruments were noticed three times a day, from 6 to 8 in the morning, from 2 to 3 P. M. and at 10 at night.

The column of winds, points out the prevailing ones of the month, placed in the rank of their proportions, and none are noticed which did not exceed ten, in the monthly observations.

The proportion of clear and cloudy weather of each month, is attempted as nearly as possible, by figures. In some the proportions are accurate; in others, I might have extended the decimals to several figures; but such accuracy being unnecessary, I have pursued it no further than one point.—The number of times of rain, hail, snow, &c. is only given as occurring at the hours of observation, without particularly specifying each: for as it often rained, &c. at other hours, when I did not notice it, this would at all events be imperfect. In some instances, the quantity of rain which fell in the month, was not attended to, and others, I have been unable to state, from having unfortunately lost, or mislaid them, in several times removing.

The thermometrical and barometrical observations having been rendered imperfect, from the same cause, I have been indebted for their completion to the kindness of Dr. Samuel Duffield, who has for several years kept a regular series.

For these reasons I do not mention the situation of the instruments employed, which has been various; yet they have always been guarded from the sun, and its immediate reflection. It is however believed, that the observations are tolerably correct; and, as we have never had so long a succession of them published, it is presumed they may prove interesting at a future day, to assist in determining what actual changes take place in our climate.

Editor.

Abstract of Meteorological Observations for 1798.

Months in divisions	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.	
	Highst.	Lowest.	Mean of division	Mean of month	High- ft.	Leaf.	Mean. of div.	Mean of mo.			
											In. dec.
January.	1	39	31	34.6	33.1	30.03	29.65	29.87	29.99	SW NW NE	Clear 5.
	2	38	24	33.4		30.60	29.70	30.13			Cloudy 4.
	3	47	22	33.8		30.15	29.83	30.04			—
	4	53	25	37.4		30.35	29.80	30.07			Rain, Snow,
	5	40	18	30.3		30.03	29.55	29.84			Hail, &c.
	6	37	18	29.6		30.30	29.40	29.99			6 times.
February.	1	44	28	37.0	32.3	30.00	29.60	29.82	29.99	NW NE	Clear 5.
	2	40	12	24.5		30.33	29.60	30.05			Cloudy 4.
	3	36	26	31.7		30.13	29.80	29.91			—
	4	35	20	27.3		30.50	30.05	30.34			Rain, &c.
	5	42	34	37.2		30.16	29.75	29.94			7
	6	41	31	36.2		30.05	29.80	29.92			
March.	1	42	30	35.7	43.2	30.25	29.70	30.01	29.86	SW NW NE	Cloudy 5.
	2	56	32	41.5		30.33	29.80	29.95			Clear 4.
	3	56	34	44.5		29.90	29.50	29.73			—
	4	46	35	39.8		30.13	29.65	29.90			Rain, &c.
	5	52	38	45.0		29.95	29.15	29.53			13
	6	70	40	52.8		30.25	29.70	30.05			
April.	1	73	38	47.7	53.0	30.23	29.90	30.03	29.96	NE SW	Clear 5.8
	2	60	44	52.0		30.20	29.90	30.07			Cloudy 4.6
	3	55	40	50.0		29.65	29.45	29.52			—
	4	58	30	41.4		30.15	29.77	29.99			Rain, &c.
	5	69	51	58.9		30.30	29.70	29.96			7
	6	76	58	68.3		30.30	30.15	30.19			
May.	1	80	64	69.6	65.7	30.10	29.70	29.94	29.98	NW SW SE NE	Clear 6.6
	2	70	58	64.9		29.90	29.65	29.81			Cloudy 3.
	3	68	52	59.0		30.04	29.80	29.94			—
	4	72	56	64.4		30.45	29.90	30.19			Rain, &c.
	5	78	61	71.5		30.45	29.80	30.15			5
	6	70	60	64.8		30.30	29.65	29.89			
June.	1	85	65	73.1	74.1	29.78	29.64	29.69	29.80	NW SW NE SE	Clear 6.1
	2	84	66	71.1		30.05	29.66	29.83			Cloudy 4.2
	3	86	62	73.2		29.96	29.84	29.96			—
	4	85	64	73.9		30.07	29.54	29.90			Rain, &c.
	5	90	71	78.6		29.83	29.56	29.70			6
	6	90	69	75.1		29.84	29.63	29.76			

February 8. River froze over, though several vessels went down the 5th and 7th.—The ice began to drive the 13th.—It was again fast the 19th, and drove the 21st.—By the 25th it was nearly gone, and several vessels went down.

March 13. Herrings in market—Shad the 20th.

April 20. First thunder storm, with hail and rain.

July 1, 2, 3. Unusually hot.—On the 2d in some places the therm. was said to stand at 98°.—It rose to 106° in the direct rays of the sun.—At 4 P. M. of the 3d, it stood at 94°—at 6 a violent storm which sunk it to 80°.

September 28. Frost in the country.—30th, in town.

October 31st. First snow this season.

December 12. Navigation obstructed.—Open the 14th.—Closed again 16th.

Abstract of Meteorological Observations for 1798.

Months in division	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.	
	Highst.	Lowest.	Mean of division.	Mean of month.	High- est.	Least.	Mean of div.	Mean of mo.			
											In. dec.
July.	1	96	73	81.4	76.4	29.90	29.72	29.77	29.84	NW SW	Clear 9.
	2	87	65	75.0		29.94	29.64	29.83			Cloudy 3.6
	3	88	60	71.9		29.95	29.71	29.83			—
	4	84	60	70.0		29.98	29.71	29.86			Rain, &c.
	5	91	68	78.9		30.08	29.86	29.95			5
	6	94	71	81.3		29.93	29.82	29.85			—
August.	1	94	74	83.0	81.6	30.02	29.72	29.83	29.96	SW NW SE W	Clear 3.6
	2	96	75	85.1		30.09	29.73	29.93			Cloudy 3.
	3	95	74	82.0		30.11	29.73	29.99			—
	4	93	77	83.2		30.13	29.99	30.04			Rain, &c.
	5	89	67	79.8		30.2	29.97	30.06			6
	6	91	65	76.8		30.00	29.90	29.94			—
September.	1	79	66	71.2	67.8	30.09	29.75	29.99	29.99	NE NW SW	Clear 5.5
	2	73	61	67.0		30.00	29.76	29.91			Cloudy 2.
	3	79	61	70.7		30.25	30.00	30.13			—
	4	81	70	75.0		30.05	30.00	30.01			Rain, &c.
	5	74	57	67.0		30.03	29.90	29.94			not noted.
	6	72	45	56.2		30.10	29.85	30.01			—
October.	1	70	51	61.8	57.2	30.33	30.00	30.15	30.01	SW NE NW	Cloudy 5.
	2	68	54	61.2		30.05	29.70	29.90			Clear 4.
	3	65	53	58.1		30.35	30.13	30.27			—
	4	66	50	57.4		30.16	30.02	30.10			Rain, &c.
	5	66	50	58.8		29.90	29.62	29.80			9
	6	68	28	46.0		29.95	29.65	29.84			—
November.	1	42	30	37.4	41.1	30.12	29.73	29.83	30.04	NW SW NE	Clear 5.
	2	45	32	38.0		30.30	30.10	30.18			Cloudy 3.5
	3	60	30	45.6		30.36	29.70	30.12			—
	4	57	40	49.6		30.05	29.56	30.03			Rain, &c.
	5	39	25	35.4		30.46	29.56	29.94			5
	6	48	30	40.6		30.50	29.89	30.18			—
December.	1	47	24	41.4	31.5	30.21	29.40	29.78	29.94	NW SW NE W	Clear 8.
	2	40	24	30.1		30.29	29.40	29.96			Cloudy 5.
	3	41	21	29.1		30.21	29.73	29.98			—
	4	34	20	26.1		30.13	29.64	29.96			Rain, &c.
	5	35	18	27.2		30.48	29.73	30.10			17
	6	42	24	35.5		30.45	29.22	29.87			—

Range of thermometer during this year,
 Mean height of thermometer for the year,
 Greatest variation of the thermometer in 24 hours,
 Range of Barometer during the year,
 Mean height of barometer for the year,
 Rain, &c. in June, July, August, November and December,
 —the other months unobserved.

Degrees 84.
 54.96
 22.
 Inches 1.46
 29.97
 14 5-12

Rain in December,
 Rain in November,

6 1-2
 1

Abstract of Meteorological Observations for 1799.

Months in divisions.	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.
	Mighell.	Lowell.	Mean of division.	Mean of month.	High. cft. In. dec.	Local. In. dec.	Mean of div. In. dec.	Mean of mo. In. dec.		
January.	1	38	8	24.9	30.69	30.00	30.36	30.16	NW NE SW	Clear 2.
	2	46	9	27.2	30.58	30.20	30.39			Cloudy 2.
	3	56	33	40.5	30.40	30.04	30.18			—
	4	57	26	38.2	30.25	29.83	30.08			Rain, &c.
	5	57	26	36.2	30.33	29.83	30.07			13 times
	6	43	22	35.3	30.21	29.61	29.91			
February.	1	50	19	35.0	30.31	29.62	29.92	30.00	NW SW NE	Clear 7.4
	2	60	16	36.0	30.68	29.40	30.20			Cloudy 3.
	3	52	26	38.7	30.27	29.60	29.90			—
	4	41	17	32.3	30.35	29.69	30.00			Rain, &c.
	5	34	8	24.5	30.30	29.49	30.00			11
	6	45	16	31.2	30.28	29.74	30.02			
March.	1	40	5	28.6	30.37	29.77	30.10	29.92	NW SW NE	Clear 9.4
	2	53	17	40.0	30.34	29.50	29.85			Cloudy 5.
	3	41	16	29.0	30.54	29.47	30.09			—
	4	48	26	37.6	30.17	29.44	29.90			Rain, &c.
	5	68	36	48.2	30.35	29.77	30.06			17
	6	78	28	49.4	30.04	29.10	29.64			
April.	1	70	30	45.4	30.00	29.47	29.62	29.71	NW SW	Clear 8.3
	2	76	30	51.2	29.94	29.40	29.68			Cloudy 3.6
	3	79	38	55.7	30.15	29.90	29.96			—
	4	83	34	60.7	29.83	29.53	29.67			Rain, &c.
	5	74	44	53.1	29.92	29.41	29.72			7
	6	76	52	59.4	30.01	29.35	29.66			
May.	1	64	42	50.6	30.07	29.64	29.88	29.78	NW SW	Clear 6.9
	2	80	48	56.4	30.21	29.38	29.72			Cloudy 2.6
	3	82	46	61.5	30.00	29.50	29.77			—
	4	76	54	61.5	30.09	29.50	29.89			Rain, &c.
	5	82	52	69.3	30.05	29.44	29.67			7
	6	80	60	67.5	29.95	29.60	29.77			
June.	1	78	54	64.6	29.92	29.63	29.78	29.76	SW NW E W S	Clear 9.
	2	78	62	66.5	29.94	29.18	29.63			Cloudy 5.
	3	86	64	73.5	30.07	29.35	29.68			—
	4	90	68	72.2	29.96	29.69	29.81			Rain, &c.
	5	92	68	79.2	29.96	29.79	29.89			7
	6	89	68	75.5	29.96	29.74	29.77			

January 5. Ink froze in the stand.—River fast after floating since the 16th last, and passable. Rapid thaw 9th—Ice floats 13th.—Several vessels went down 16th.—Young grasshoppers found alive and numerous near Schuylkill 22d.

February 25. River fast.—Open 27th.

March 5. River froze over—but soon floated.—9th, a vessel came up after night—and more the 10th.—14th, snow a foot deep.—23d, herrings in market.—25th, shad.

April 20. Asparagus in market.

September 23. White frost and thin ice in the country.

November 26. Light fall of snow and hail.

December 14. General Washington died.—26th, much floating ice after several days thaw.

Abstract of Meteorological Observations for 1799.

Months in divisions.	BAROMETER.				THERMOMETER.				Prevailing winds.	Weather.	
	Highst.	Lowest.	Mean of division.	Mean of month.	High- est.	Least.	Mean of div.	Mean of mo.			
											In. dec.
July.	1	84	70	77.7	76.2	29.97	29.72	29.82	29.73	SW NW NE	Clear 5.
	2	83	68	75.6		29.86	29.57	29.65			Cloudy 3.
	3	84	66	77.1		29.92	29.48	29.66			—
	4	80	68	74.0		29.77	29.66	29.71			Rain, &c.
	5	84	64	73.8		29.86	29.65	29.78			6 times.
	6	86	66	79.3		29.80	29.56	29.78			
August.	1	85	71	75.2	74.5	29.77	29.59	29.63	29.72	SW NE NW W	Clear 2.
	2	84	72	78.0		29.84	29.55	29.74			Cloudy 1.
	3	82	72	77.0		29.70	29.48	29.58			—
	4	81	64	71.9		29.94	29.53	29.69			Rain, &c.
	5	82	63	72.0		30.03	29.73	29.92			6
	6	83	68	73.2		29.90	29.66	29.77			
September.	1	84	66	73.9	67.2	29.85	29.70	29.72	29.94	NE NW SW	Clear 5.
	2	70	64	66.8		30.05	29.70	29.93			Cloudy 3.3
	3	85	68	76.6		30.05	29.90	29.95			—
	4	77	63	67.8		30.10	29.95	30.04			Rain, &c.
	5	65	50	59.6		30.00	30.00	30.00			13
	6	66	49	58.6		30.15	29.90	30.03			
October.	1	69	48	61.4	55.0	30.20	30.00	30.06	29.96	NE NW SW	Cloudy 4.
	2	64	50	57.6		30.13	29.75	30.01			Clear 3.3
	3	64	55	57.9		30.20	29.85	29.67			—
	4	63	36	49.5		30.20	29.73	30.00			Rain, &c.
	5	68	35	49.9		30.40	29.75	30.08			10
	6	64	50	54.0		30.30	29.80	29.97			
November.	1	58	37	48.1	46.4	29.96	29.84	29.89	29.68	SW NW W	Clear 5.
	2	64	45	53.6		29.84	29.34	29.62			Cloudy 3.2
	3	61	38	47.4		29.82	29.10	29.51			—
	4	68	32	46.7		29.99	29.42	29.83			Rain, &c.
	5	59	30	48.6		29.99	29.38	29.65			8
	6	40	27	34.2		29.93	29.27	29.58			
December.	1	41	30	36.5	33.7	29.90	29.32	29.66	29.71	NW NE W SW	Clear 5.
	2	42	25	37.2		30.15	29.52	29.88			Cloudy 3.6
	3	44	26	33.0		30.08	29.55	29.81			—
	4	35	17	29.7		30.13	29.42	29.80			Rain, &c.
	5	36	26	30.6		29.84	29.50	29.66			16
	6	43	26	35.2		29.77	29.02	29.49			

Range of thermometer during the year,
Mean height of thermometer for the year,
Greatest variation of thermometer in 24 hours,
Range of barometer during the year,
Mean height of barometer for the year,
Rain &c. fell this year,
Greatest quantity in one month (March, September,)
Least (July,)

Degrees 87.
53.15
32.
Inches 1.67
29.86
42 3.4
5 1-2
1

Abstract of Meteorological Observations for 1800.

Months in divisions.	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.
	Highell.	Lowell.	Mean of division.	Mean of month.	High-ell.	Leaf.	Mean of div.	Mean of mo.		
January.	1	35	25	30.8	30.04	29.50	29.15	29.59	NW W SW	Clear 9.5 Cloudy 5.1 — Rain, &c. 5
	2	34	13	29.0	30.13	29.70	29.96			
	3	46	30	36.6	30.00	29.40	29.73			
	4	49	28	35.7	29.85	28.94	29.46			
	5	38	25	32.9	30.00	29.44	29.70			
	6	36	10	29.9	30.53	29.70	29.55			
February.	1	39	26	32.8	30.16	29.37	29.76	29.81	NW W NE SW	Clear 6.7 Cloudy 2. — Rain, &c. 10
	2	36	22	28.8	30.23	29.74	30.05			
	3	36	18	27.5	30.04	29.42	29.78			
	4	38	22	27.6	29.94	29.78	29.87			
	5	48	33	40.0	30.10	29.33	29.73			
	6	34	28	32.1	29.98	29.14	29.71			
March.	1	40	24	32.3	30.05	29.48	29.91	29.89	NW NE W	Clear 5.1 Cloudy 2. — Rain, &c. 12
	2	48	30	27.9	30.68	29.95	30.28			
	3	49	31	38.4	30.05	29.55	29.82			
	4	54	38	44.4	29.95	29.50	29.81			
	5	52	36	40.2	29.99	29.40	29.80			
	6	61	42	49.0	30.11	29.38	29.76			
April.	1	68	38	54.9	30.06	29.74	29.95	29.98	NW SW W NE	Clear 7. Cloudy 6.1 — Rain, &c. 10
	2	75	48	57.4	30.19	29.54	29.90			
	3	57	42	50.4	30.15	29.36	29.80			
	4	73	48	60.3	30.37	30.00	30.22			
	5	60	42	51.2	30.17	29.72	29.96			
	6	77	50	61.6	30.23	29.91	30.06			
May.	1	70	48	54.9	30.27	29.76	30.04	29.95	NE NW SE	Clear 5.1 Cloudy 3.2 — Rain &c. 10
	2	68	48	55.4	30.19	29.77	29.70			
	3	81	58	66.8	30.06	29.61	29.85			
	4	70	58	62.8	30.01	29.83	29.94			
	5	72	53	61.1	30.32	30.02	30.20			
	6	75	58	67.1	30.22	29.82	30.01			
June.	1	80	55	70.5	30.08	29.75	29.91	29.92	SW NW SE	Clear 9. Cloudy 4. — Rain, &c. 12
	2	79	62	70.2	30.12	29.59	29.92			
	3	85	69	74.6	30.00	29.73	29.82			
	4	73	59	65.5	30.15	29.87	29.97			
	5	80	67	73.0	29.98	29.83	29.92			
	6	83	65	72.7	30.18	29.87	30.00			

January 7. Navigation obstructed by floating ice.—18th, river clear.—29th, frozen over.—30th, ice driving.—31st, a violent snow storm a foot deep.

February 6. A vessel went down.—17th to 24th, a thaw.—18th, navigation stopped by floating ice.—24th, river clear, several vessels came up.

March 8. 9. Snow a foot deep.—17th, shad in market.

April 15. Asparagus in market.

June. Locusts appearing in large numbers.

Abstract of Meteorological Observations for 1800.

Months in divisions.	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.
	Highst.	Lowest.	Mean of division.	Mean of month.	High- est. In. dec.	Least. In. dec.	Mean of div. In. dec.	Mean of mo. In. dec.		
July.	80	65	71.7	76.2	30.40	30.15	30.29	30.09	NE	Clear 7.2
2	90	73	83.1		30.35	29.85	30.06		SW	Cloudy 1.5
3	87	70	76.9		30.15	29.85	30.01		W	—
4	87	67	74.4		30.16	29.98	30.06			Rain, &c.
5	86	65	72.0		30.15	29.95	30.07			5
6	89	73	79.1		30.17	29.96	30.07			
August.	85	68	74.8	73.4	30.10	29.90	30.00	30.04	SW	Clear 4.
2	84	66	72.4		30.20	29.90	30.04		NW	Cloudy 3.
3	80	64	73.8		30.05	29.90	29.98		NE	—
4	79	60	71.7		30.30	30.00	30.04		SE	Rain, &c.
5	81	67	74.5		30.34	30.10	30.18			3
6	82	66	73.3		30.15	29.65	30.03			
September.	75	59	67.9	66.6	30.25	29.69	29.92	30.07	NE	Clear 11.
2	75	58	66.4		30.39	30.06	30.21		NW	Cloudy 5.
3	81	61	69.5		30.39	29.92	30.14		SE	—
4	78	57	69.1		30.40	29.98	30.14			Rain, &c.
5	75	54	62.9		30.25	29.95	30.09			9
6	69	59	63.8		30.04	29.82	29.95			
October.	70	46	59.5	54.9	30.27	29.29	30.02	30.04	SW	Clear 7.
2	66	47	54.6		30.21	29.47	30.06		NE	Cloudy 3.
3	66	46	54.8		30.45	30.08	30.27		NW	—
4	66	47	57.8		30.23	29.18	29.80		W	Rain, &c.
5	67	41	52.4		30.07	29.74	29.86		SE	15
6	59	44	50.6		30.49	30.09	30.27			
November.	58	40	49.9	40.7	30.23	29.73	30.01	29.97	NW	Clear 6.
2	55	40	46.6		30.14	29.64	29.84		SW	Cloudy 7.
3	49	34	42.8		30.24	29.39	29.80		W	—
4	56	30	40.3		30.29	29.56	30.09			Rain, &c.
5	33	25	27.2		30.23	29.76	29.98			9
6	48	29	37.4		30.38	29.96	30.10			
December.	42	25	34.4	36.8	30.42	29.74	30.05	30.00	NW	Clear 9.2
2	36	25	31.6		30.44	29.74	30.04		SW	Cloudy 6.2
3	50	28	33.0		30.29	29.23	29.82		NE	—
4	51	25	38.7		30.15	29.78	30.03		SE	Rain, &c.
5	51	37	42.2		30.18	29.79	30.01			16
6	62	26	41.0		30.28	29.86	30.10			

Range of thermometer during the year,
Mean height of thermometer for the year,
Greatest variation of thermometer in 24 hours,
Range of barometer during the year,
Mean height of barometer for the year,
Rain, &c. fell this year,
Greatest quantity in one month (March,)
Least (January,)

Degrees 80
53.40
20.
Inches 1.74
29.97
39.
5 1 2
1

Abstract of Meteorological Observations for 1801.

Months in divisions.	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.	
	Highst.	Lowest.	Mean of division.	Mean of month.	High- est	Least.	Mean of div.	Mean of mo.			
											In. dec.
January.	1	34	7	23.4	31.2	30.56	29.89	30.22	29.92	NW NE SW	Clear 9.
	2	40	19	31.7		30.28	29.68	30.05			Cloudy 6.4
	3	46	27	35.7		29.96	29.46	29.77			—
	4	40	28	33.1		30.32	29.49	29.93			Rain, &c.
	5	35	18	26.3		30.19	29.65	29.85			17
	6	48	30	37.4		30.08	29.25	29.70			
February.	1	40	27	33.6	34.5	30.25	29.53	29.90	29.95	NW SW	Clear 5.7
	2	45	25	33.8		30.21	29.65	29.35			Cloudy 2.
	3	28	12	21.2		30.12	29.49	29.80			—
	4	40	16	32.0		30.30	29.92	30.13			Rain, &c.
	5	56	19	35.6		30.51	30.12	30.29			14
	6	63	40	51.2		30.48	30.14	30.25			
March.	1	60	31	44.2	44.4	30.48	29.78	30.25	29.65	NW NE SW	Cloudy 6.3
	2	58	32	39.8		30.01	29.25	29.78			Clear 4.
	3	54	38	44.8		29.91	29.28	29.65			—
	4	56	40	50.0		30.09	29.38	29.05			Rain, &c.
	5	57	38	46.3		29.79	29.45	29.32			21
	6	53	35	41.3		30.30	29.39	29.90			
April.	1	64	42	48.6	49.0	30.25	29.85	30.06	29.87	NE NW SW	Clear 8.6
	2	53	37	43.3		30.28	29.60	29.95			Cloudy 6.2
	3	58	39	49.5		30.18	29.85	30.02			—
	4	58	44	49.6		30.24	29.85	30.11			Rain, &c.
	5	54	34	43.2		30.06	29.16	29.73			16
	6	70	52	60.0		30.13	29.74	29.40			
May.	1	72	55	61.8	64.6	30.07	29.58	29.77	29.88	SW NW NE SE	Clear 7.5
	2	70	56	60.6		29.88	29.45	29.63			Cloudy 5.
	3	75	58	64.0		30.09	29.88	30.00			—
	4	78	55	64.2		30.09	29.80	29.93			Rain &c.
	5	80	55	68.5		30.14	29.62	29.91			5
	6	82	55	68.8		30.18	29.62	30.05			
June.	1	79	58	67.9	70.9	30.15	29.59	29.94	30.01	SW NW NE	Clear 4.1
	2	70	54	62.5		30.27	30.04	30.16			Cloudy 2.
	3	79	60	68.2		30.10	29.94	30.00			—
	4	81	67	72.1		30.18	29.78	29.94			Rain, &c.
	5	86	65	75.6		30.18	29.85	29.99			4
	6	87	74	79.6		30.14	30.02	30.06			

November 12. An earthquake at midnight.
21. First snow this season.

Abstract of Meteorological Observations for 1801.

Months in divisons.	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.	
	Highst.	Lowest.	Mean of division.	Mean of month.	High- est.	Least.	Mean of div.	Mean of mo.			
											In. dec.
July.	1	90	66	77.5	76.4	30.25	29.79	29.99	30.03	SW NW SE	Clear 2.
	2	83	66	73.8		30.28	30.15	30.31			Cloudy 1.
	3	84	72	77.3		30.15	29.86	29.98			—
	4	87	79	83.0		29.94	29.86	29.90			Rain, &c.
	5	83	69	75.6		30.11	29.82	29.94			8
	6	82	62	71.5		30.29	29.80	30.07			
August.	1	76	59	68.0	72.8	30.22	29.95	30.08	29.99	NW SW SE NE	Clear 7.1
	2	79	65	72.3		30.18	29.92	30.08			Cloudy 4.4
	3	81	67	73.2		29.99	29.85	29.95			—
	4	83	70	76.0		30.18	29.84	29.98			Rain, &c.
	5	85	69	76.1		29.90	29.64	29.81			10
	6	75	65	71.4		30.20	29.97	30.09			
September.	1	85	73	77.0	69.1	30.15	30.01	30.06	30.15	NW SW NE	Clear 5.
	2	86	72	79.0		30.19	29.88	30.05			Cloudy 3.4
	3	71	58	64.4		30.34	30.11	30.25			—
	4	76	63	67.8		30.28	30.08	30.18			Rain, &c.
	5	80	61	70.6		30.35	30.09	30.20			6
	6	65	47	56.3		30.29	30.08	30.20			
October.	1	70	50	60.9	56.5	30.30	29.85	30.09	30.13	NW SW	Clear 7.4
	2	67	43	54.6		30.52	29.96	30.25			Cloudy 1.4
	3	75	50	63.4		30.24	29.83	30.02			—
	4	68	46	55.0		30.28	29.84	30.08			Rain, &c.
	5	66	44	53.2		30.37	30.15	30.23			3
	6	63	42	52.0		30.25	30.05	30.13			
November.	1	61	33	47.0	42.0	30.53	29.99	30.23	30.13	NW SW NE	Clear 7.
	2	52	31	41.1		30.40	29.99	30.27			Cloudy 5.7
	3	52	35	42.5		30.43	29.87	30.14			—
	4	62	31	45.1		30.07	29.70	29.90			Rain, &c.
	5	43	27	34.4		30.29	29.85	30.06			13
	6	61	28	42.1		30.48	29.99	30.20			
December.	1	47	28	38.4	35.7	30.20	29.45	29.85	29.89	NW SW NE	Clear 5.
	2	45	26	38.1		29.86	29.36	29.73			Cloudy 2.9
	3	43	31	36.2		30.25	29.92	30.08			—
	4	36	21	29.5		30.19	29.79	29.92			Rain, &c.
	5	45	26	36.5		30.26	29.19	29.80			13
	6	49	26	35.7		30.30	29.72	29.97			

Range of thermometer during the year,

Degrees 83

Mean height of thermometer for the year,

53.36

Greatest variation of thermometer in 24 hours,

19.

Range of barometer during the year,

Inches 1.33

Mean height of barometer for the year,

29.99

Rain, &c. fell this year,

40 6-8

Greatest quantity in one month (August,)

11 6-8

Least (October,)

0 5-8

Abstract of Meteorological Observations for 1802.

Months in divisions	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.
	Highst.	Lowest.	Mean of division.	Mean of month	High- est.	Least.	Mean of div.	Mean of mo.		
January.	1	57	30	43.3	30.35	29.80	30.16	30.07	SW NW	Clear 3. Cloudy 2. — Rain, &c. 12
	2	48	27	41.7	30.30	29.65	29.90			
	3	50	28	35.5	30.33	29.83	30.09			
	4	52	34	41.9	30.10	29.70	29.96			
	5	45	25	33.2	30.60	29.73	30.13			
	6	56	24	49.3	30.45	29.90	30.18			
February.	1	42	22	32.8	30.45	29.70	30.08	30.04	NE NW SW	Cloudy 2.4 Clear 2.2 — Rain, &c. 10
	2	44	18	33.8	30.50	29.96	30.24			
	3	49	28	38.0	30.25	29.90	30.04			
	4	50	24	37.3	30.40	29.95	30.26			
	5	43	10	29.1	30.00	29.17	29.76			
	6	38	34	36.0	30.10	29.80	29.90			
March.	1	46	33	39.5	30.26	29.70	29.96	30.01	SW NE	Clear 3.5 Cloudy 3. — Rain, &c. 9
	2	52	24	38.6	30.20	29.45	29.91			
	3	47	27	38.2	30.50	29.90	30.12			
	4	66	35	54.1	30.40	29.75	30.11			
	5	54	35	45.2	30.25	29.50	29.93			
	6	49	28	38.7	30.35	29.75	30.05			
April.	1	70	38	55.2	30.23	29.75	30.10	30.07	SW NW NE	Clear 7.2 Cloudy 4. — Rain, &c. 7
	2	64	41	54.8	30.37	29.85	30.17			
	3	55	40	48.5	30.05	29.80	29.95			
	4	57	38	47.1	30.47	29.90	30.11			
	5	65	49	55.9	30.35	29.80	30.13			
	6	67	48	56.3	30.20	29.80	30.00			
May.	1	69	47	59.0	30.30	29.90	30.11	29.82	NW NE W	Cloudy 3. Clear 2. — Rain, &c. 11
	2	68	52	60.2	30.05	29.80	29.89			
	3	67	52	57.4	29.80	29.50	29.62			
	4	62	50	54.4	29.90	29.50	29.64			
	5	68	56	60.9	30.00	29.60	29.83			
	6	71	58	62.9	30.00	29.70	29.85			
June.	1	72	58	64.8	30.10	29.83	30.00	29.98	SW NE SE	Clear 3. Cloudy 3.2 — Rain, &c. 10
	2	78	65	72.1	30.10	29.80	30.00			
	3	86	67	76.3	30.10	29.90	30.03			
	4	81	63	70.3	30.35	29.80	30.12			
	5	83	68	76.0	30.00	29.06	29.81			
	6	80	62	71.7	30.05	29.86	29.96			

February 17. A shad in market.

March 6. A herring in market.

April. 10. Asparagus in market.

October 25. Ice in the country.

Abstract of Meteorological Observations for 1802.

Months in divisions.	BAROMETER.				THERMOMETER.				Prevailing winds.	Weather.	
	Highst.	Lowest.	Mean of division.	Mean of month.	High- est.	Least.	Mean of div.	Mean of mo.			
											In. dec.
July.	1	80	68	73.3	74.7	30.10	29.90	30.02	30.00	SW NW NE SE	Clear 5.4
	2	76	63	71.0		30.00	29.80	29.91			Cloudy 5.2
	3	78	66	71.0		30.20	30.00	30.12			—
	4	84	69	76.8		30.20	29.96	30.06			Rain, &c.
	5	88	74	79.8		30.15	29.93	30.03			9
	6	82	73	76.4		30.10	29.82	29.91			
August.	1	82	67	73.3	74.5	30.00	29.90	29.96	30.05	NW SW NE SE	Cloudy 5.2
	2	81	68	73.1		30.22	29.96	30.13			Clear 5.
	3	82	60	71.1		30.20	29.73	29.98			—
	4	79	68	72.7		30.27	30.00	30.15			Rain, &c.
	5	83	69	79.3		30.12	30.00	30.07			12
	6	86	72	77.5		30.12	29.90	30.01			
September.	1	82	59	69.2	67.2	30.10	29.85	30.00	29.98	NW NE SW	Cloudy 4.4
	2	73	55	64.0		30.07	29.77	29.88			Clear 5.2
	3	84	62	73.5		30.00	29.80	29.95			—
	4	83	65	72.7		30.18	29.98	30.07			Rain, &c.
	5	80	48	65.2		30.15	29.80	29.88			5
	6	66	53	59.0		30.23	30.10	30.13			
October.	1	67	50	58.3	59.9	30.37	30.20	30.22	30.10	NW SW NE SE	Clear 6.6
	2	76	56	66.2		30.23	30.00	30.17			Cloudy 4.
	3	72	60	66.4		30.30	29.97	30.09			—
	4	72	55	64.4		30.23	29.95	30.08			Rain, &c.
	5	64	44	55.4		30.10	29.90	29.99			6
	6	56	42	48.8		30.20	29.80	29.97			
November.	1	47	34	40.4	45.6	30.20	29.40	29.98	29.99	SW NE NW	Clear 5.
	2	56	43	49.0		30.30	29.97	30.10			Cloudy 3.
	3	54	38	46.7		30.10	29.80	29.93			—
	4	52	43	48.0		30.05	29.70	29.88			Rain, &c.
	5	57	41	49.3		30.15	29.87	30.03			6
	6	54	32	40.7		30.17	29.90	30.03			
December.	1	48	32	41.3	33.3	30.33	29.30	29.96	30.02	SW NW NE	Cloudy 5.8
	2	43	26	33.4		30.10	29.85	29.91			Clear 5.
	3	38	26	33.4		30.20	29.90	30.01			—
	4	38	12	23.8		30.50	29.90	30.14			Rain, &c.
	5	44	24	25.8		30.60	29.70	30.05			12
	6	64	32	42.4		30.47	29.90	30.09			

Range of thermometer during the year,
Mean height of thermometer for the year,
Range of barometer during the year,
Mean height of barometer for the year,

Degrees 78.
54.96
Inches 1.43
30.03

Abstract of Meteorological Observations for 1803.

Months in divisions.	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.
	Highst.	Lowst.	Mean of division.	Mean of month.	High- est.	Least.	Mean of div.	Mean of mo.		
1	40	28	33.4	32.9	30.33	29.73	30.09	29.85	SW W NW	Clear 6.
2	50	20	32.7		30.20	29.53	29.93			Cloudy 5.
3	53	36	45.3		30.00	29.65	29.86			—
4	38	22	28.0		29.85	29.75	29.81			Rain, &c.
5	38	19	29.4		29.80	29.55	29.68			12
6	36	14	28.6		30.00	29.53	29.74			
1	50	18	32.6	36.3	30.37	29.30	29.90	30.02	SW NW SE NE	Cloudy 3.1
2	51	28	39.6		30.40	29.85	30.01			Clear 2.
3	55	24	37.2		30.48	29.80	30.21			—
4	44	25	33.9		30.35	29.95	30.03			Rain, &c.
5	51	30	39.3		30.25	29.90	30.04			12
6	43	24	35.6		30.20	29.80	29.98			
1	45	14	30.0	41.9	30.05	29.50	29.90	30.03	SW NE NW	Clear 4.8
2	43	28	32.3		30.30	30.00	30.16			Cloudy 4.
3	63	34	46.2		30.30	30.17	30.27			—
4	65	46	54.6		30.05	29.80	29.89			Rain, &c.
5	61	36	45.8		30.07	29.65	29.86			7
6	53	29	43.0		30.35	29.80	30.12			
1	68	46	57.0	54.2	30.35	29.82	30.09	30.03	SW NE NW SE	Cloudy 5.
2	61	44	51.8		30.20	29.85	30.06			Clear 4.8
3	66	50	58.1		30.03	29.83	29.93			—
4	60	32	45.7		30.40	29.80	30.10			Rain, &c.
5	69	47	57.4		30.27	29.83	30.00			8
6	67	44	55.7		30.30	29.77	30.05			
1	67	46	56.1	58.9	30.15	29.77	29.85	30.03	NE NW SW	Cloudy 4.
2	59	37	48.1		30.52	29.67	30.10			Clear 3.
3	67	49	60.5		30.40	29.97	30.11			—
4	72	58	65.2		29.90	29.80	29.87			Rain, &c.
5	71	57	62.6		30.03	29.95	29.98			8
6	70	54	61.0		30.50	30.02	30.28			
1	77	61	69.4	73.0	30.00	29.85	29.93	30.03	SW NW SE NE	Clear 7.6
2	74	58	65.6		30.33	30.00	30.17			Cloudy 3.8
3	86	67	75.9		30.10	29.95	30.02			—
4	82	63	72.5		30.00	29.80	29.89			Rain, &c.
5	85	66	76.7		30.30	30.05	30.18			8
6	85	72	77.9		30.12	29.95	30.04			

Range of thermometer during this year,
Mean height of thermometer for the year,
Range of Barometer during the year,
Mean height of barometer for the year,

Degrees 84.
55.15
Inches 1.40
30.03

Abstract of Meteorological Observations for 1803.

Months in divisions.	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.	
	Highst.	Lowst.	Mean of division.	Mean of month.	High- est.	Least.	Mean of div.	Mean of mo.			
											In. dec.
July.	1	85	64	72.9	78.0	30.15	29.85	30.01	30.03	SW W NE NW	Clear 6.
	2	88	68	77.2		30.25	30.15	30.19			Cloudy 5.
	3	90	74	82.8		30.20	29.95	30.02			—
	4	84	73	79.1		30.10	29.87	29.95			Rain, &c.
	5	88	72	79.1		30.10	29.80	29.94			8
	6	86	70	77.3		30.15	30.00	30.09			
August.	1	86	75	80.0	75.7	30.03	29.90	29.96	30.07	SW NE NW W	Clear 6.5
	2	83	71	75.6		29.97	29.80	29.87			Cloudy 3.
	3	84	68	76.7		30.10	29.90	30.01			—
	4	82	70	76.1		30.12	29.85	29.99			Rain, &c.
	5	80	63	70.0		30.28	29.90	30.15			9
	6	84	66	76.2		30.25	29.90	30.05			
September.	1	79	66	71.8	65.9	30.10	29.90	29.99	30.06	NW NE SE	Clear 6.
	2	78	58	66.1		30.12	29.82	30.00			Cloudy 2.8
	3	74	61	67.3		30.15	29.90	30.04			—
	4	72	55	63.7		30.20	29.93	30.02			Rain, &c.
	5	71	58	65.4		30.32	29.90	30.17			6
	6	68	54	61.5		30.40	30.00	30.14			
October.	1	67	52	59.3	57.9	30.40	29.63	30.01	30.02	NE NW SW	Clear 6.
	2	67	51	59.0		30.23	29.73	30.06			Cloudy 4.6
	3	70	53	62.6		30.18	29.65	29.90			—
	4	62	44	55.8		30.10	29.70	29.89			Rain, &c.
	5	59	44	51.6		30.38	30.10	30.20			4
	6	65	48	59.3		30.20	29.85	30.06			
November.	1	60	45	53.6	43.2	30.13	29.90	30.06	29.98	NE NW SW	Clear 5.6
	2	59	37	45.4		29.98	29.50	29.78			Cloudy 4.4
	3	50	30	40.9		30.25	29.90	30.11			—
	4	49	30	40.1		30.22	29.65	29.88			Rain, &c.
	5	48	34	41.9		30.03	29.67	29.91			7
	6	45	31	37.6		30.35	30.03	30.17			
December.	1	55	30	42.7	40.6	30.50	29.58	30.12	29.96	NE SW NW	Cloudy 5.6
	2	56	40	46.9		30.40	29.80	30.13			Clear 4.6
	3	60	34	45.5		29.90	29.12	29.56			—
	4	43	30	36.6		30.10	29.75	29.90			Rain, &c.
	5	44	22	33.0		30.40	29.80	30.07			13
	6	43	34	39.0		30.20	29.82	30.01			

Greatest range of thermometer for six years,
Mean height of thermometer for six years,
Greatest range of barometer for six years,
Mean height of barometer for six years,

Degrees 87.
54.16
Inches 1.74
29.97

BY the latest intelligence from Great Britain, that of the most interesting nature to the medical profession is the sudden alarm, excited by a recent publication of Mr. Goldson, a surgeon of respectability at Portsea. This gentleman from some cases which have occurred to him, has attempted to oppose the generally received opinion, of the prophylactic powers of vaccination. He admits the permanent efficacy of the *casual* cow pox; but is disposed to consider the *inoculated* cow pox, as possessing only a temporary influence upon the human system. This idea of the temporary advantages of vaccination, it is well known, was promulgated at a very early period after the introduction of this inestimable preservative against variolous contagion. It was this, which assisted the enemies of vaccination greatly in their opposition to it, and which, for a long time, prevented many from engaging in its practice, who have since warmly espoused it.—It may well be imagined that a pamphlet containing the history of several cases of small pox after vaccination, and all occurring under the notice of one practitioner, would necessarily excite the greatest uneasiness in the public mind, more especially of that part of it, whose relations had been subjected to its influence, under the conviction of its permanent efficacy. The long and strenuous exertions of the friends of vaccination, are thus unexpectedly thrown aback; and they must again submit to stem the torrent of popular prejudice, which has been excited hereby. The numerous and unprejudiced testimony of thousands, in its favour—founded on accurate and well conducted experiments, are thus opposed by the voice of an individual. It is not, perhaps, necessary to dwell upon the circumstance of all these cases (six in number) happening in the practice of a single person, although it must be admitted as extraordinary, that amidst the repeated trials of others, a similar result has scarcely ever been noticed. It is, however, incumbent upon all, whose faith continues unshaken in favour of the vaccine, to shew by additional facts, that the disease still continues, and will ever continue to render itself dear, to the votaries of humanity, by upholding the same invaluable property which gave rise to its introduction as a re-

medy in the practice of physick.—Without entering into the merits of the pamphlet alluded to, which will be best effected by those on the spot—we shall endeavour to show from a variety of sources, that however accurate the account may be, it ought not to diminish our conviction of the utility of vaccination.—In so newly a discovered disease, doubtless, many points remain yet to be elucidated, and many anomalies to be attended to, of which we are at present ignorant; yet few diseases have ever so rapidly advanced to the same perfection, as this has done.

The cases which Mr. Goldson has brought forward are said to be intended to direct the attention of practitioners to an object of such consequence. For this he deserves credit; for, as is said in the Statement of Evidence from Trials by Inoculation, &c. by the Physicians of the original vaccine pock institution, —“it is fitting that the public be informed of the real value of the new inoculation, that it may be adopted for as much as it is worth.”

The above-named institution, considering that facts are superior to arguments in a point like the present, have instituted a series of experiments, conducted with the greatest candour and in the most satisfactory manner, by which the hopes of the friends of vaccination, are ten-fold strengthened; whilst its opponents, can scarcely but admit the conclusions drawn from them. These we propose to insert here at length, and have no doubt the importance of the subject will plead our excuse for so long an extract.*

“THE preceding trials were intended primarily to afford additional evidence of the efficacy of the cow pock in destroying the susceptibility of the small pox, for the consideration of those who have informed the public of contrary results. If these experiments do not produce conviction, and enable the authors of the contravening statements to perceive that the grounds of their error consist either in their subjects not having in reality undergone the cow pock, or in their having had some eruptive complaint, mistaken for the small pox; we at least, justly demand

that our example be followed of re-instituting the trials on an equal number of persons, who can be proved by authentic and fully adequate evidence to have gone through the vaccina. -Also, that in case of eruptions attending, supposed to be the small pox, such supervening eruptive disorders be shewn from full and authentic evidence to have been the small pox. Without the imputation of inaccuracy, inattention, or blameable ignorance in those who declared that the cow pock does not produce incapability of taking the small pox, at least that it does so only for a limited time; we feel ourselves justifiable in believing that they have deceived themselves, and of course we cannot admit the cases as evidence of the small pox at any period whatever, subsequent to the cow pock.

“ We now proceed to offer a few remarks on the two classes of adverse evidence, for the sake of which, the experiments related in this paper were instituted, *viz.* the cases asserted of the small pox excited by inoculation recently after the cow pock and of the small pox so excited, more remotely, *viz.* three or four years after the cow pock.

“1. The experiments above related in this paper, shew, that above fifty persons who had been vaccinated three to five years ago, and ten who had been vaccinated at a later period were incapable of taking the small pox by inoculation in circumstances chosen as most favourable for infection. For many of the subjects were exposed to the effluvia from small pox patients; they were all inoculated in three times the usual number of places; they were all inoculated with efficacious and recent matter; and with many of them unusual pains were bestowed to introduce the matter quite fluid immediately from the variolous patient. In these it seems fair to calculate that not more than one, or at most, two, of these sixty persons would have escaped the small pox, if they had not already gone through that disease or its vicarious affection, the cow pock.

“ 2. These experiments strikingly manifest that the same person is equally incapable of taking the cow pock a second time, as of the small pox, as hath been proved five years ago, and been

subsequently confirmed ; and it has been elsewhere shewn by many trials that a person cannot take the cow pock subsequently to the small pox.* Independently of the facts thus determined by experience, they have been demonstrated to be truths in another place five years ago, by reasoning according to a mathematical formula. Now, although these two latter truths alone do not demonstrate, with mathematical cogency, the truth that a person cannot take the small pox after the cow pock ; yet the proof of this last truth, already so firmly established by direct experiments, hereby becomes more full and indeed, perhaps, superabundant.

“ 3. The appearances observed on the inoculated parts, in the above experiments, which some may think unnecessarily minute, we apprehend will be found serviceable, by informing the public of the variety of different forms of the local affection produced in similar cases. It has been observed in some of our above experiments, that the local affection from the small pox matter resembled many cases of the pock of the vaccina ; and although an eye much accustomed to view variolous eruptions, can never fail to see the differences between such eruptions and the local affections, in the present instances ; yet we know from intercourse with practitioners, that those who have not acquired such an habit of observation, are prone to be alarmed, in imagining that the eruption excited on a second inoculation is the small pox.

“ 4. The appearances of the inoculated parts in those who have had the cow pock are not only oftentimes different in different persons, but they are even different in the several punctures of the same arm ; and, as far as we could judge, no appearances were remarked from the variolous insertions which did not also occasionally occur from the vaccine ones ; except that the effects were generally less evident from the latter than the former. These varying appearances according to our

* Many cases disprove this opinion ; I was myself the first person in Philadelphia who had the disease, in the highest perfection ; I could enumerate, a dozen persons more, who have taken it after small pox, in confirmation, besides the numbers noticed in Europe.—*Editor.*

observations are, such as, (if they occurred on inoculation of matter in order to produce the cow pock, but failed to do so,) would be called the *Spurious Cow Pock*. But hence, we think, is manifest the impropriety of speech, and the consequent diffusion of erroneous notions, in the use of the terms, *Spurious Matter*, and *Spurious Cow Pock*, in those who have, as well as those who have not had the vaccina or variola; terms which imply a distinct and specific disorder or affection, and a distinct and specific matter: whereas the fact from our experience on the present and former occasions, is, that the local affections are indefinable at present, and the terms to denote them must, of course, be indefinite and vague.*

“ 5. The different appearances of the inoculated part seemed to depend upon several circumstances, *viz.* the recent, the diluted and altered state of the matter by keeping.—The kind of wound in the inoculation—the external injury or irritation, by pressure of clothes, scratching, &c.—the habit of the subject; but whether according as the matter was variolous or vaccine, will require more experience to determine; yet in the preceding experiments, the effects seem only to differ in being in a greater degree from the variolous than the vaccine matter, and certainly not according to the length of time after vaccination.†

“ 6. To see whether or no the local affection in these experiments arose from any stimulus but the serum of the blood accompanying the infectious matter, serum was inoculated in several instances. From these it appears that this fluid stimulated the same arm much less than vaccine or variolous matters.‡ As

* The term *spurious disease* is proper, but not *spurious matter*: the former discriminates the departure from the *true* appearance of the disease, which may be produced even with infection from the most perfect pock.—*Editor*.

† It appears from the preceding, and numerous trials by others, that the state of inexcitability of the constitution is the same with regard to the variolous and vaccine matter; and is not less some years, than some months, weeks, or days after the cow pock. Hence we have no signs of the unsusceptibility growing less and less in the course of five years after vaccination. Nor is the excitability of the skin altered by repeating the inoculation, which shews that the local affection is not from any specific state.

‡ The very feeling of the parts inoculated, described by its being a tingling

far as a trial of six punctures with a clean lancet in a few vaccinated patients may be reasoned upon, the local affection is neither excited so frequently, nor to so great a degree, as with animal matters, in general; but when it does occur, it is similar to some cases of inoculation with vaccine and variolous matter.

“The above experiments shew how harmless, though not always without pain, the inoculations by half a dozen punctures on each arm, with vaccine and variolous matters, are in those who have gone through the cow pock; and hence that the test of the security desired having been produced may be very safely applied.

“Before we close this paper, we must deliver some remarks on the two other classes of adverse cases above noticed, viz. 1. Those of the small pox supervening, in what is called the natural way, a short time after the constitution has been affected by the cow pock: 2. Those of the small pox so occurring in three or more years after the cow pock. Here it will be right to bring forward our evidence of defence.

“1st. A great number of instances had fallen under observation of persons being rendered incapable of the small pox in the natural way throughout life, who had accidentally contracted the cow pock in the occupation of milkers, long before vaccine inoculation was proposed for trial in 1798. This fact was known, not in Gloucestershire only, but in many other counties of England, in Ireland, and different parts of the continent of Europe.

“2d. The instances of ineffectual inoculation for the small pox, soon after the inoculated cow pock, since the adoption of vaccination first of all in 1799 and 1800, as published by Dr. Woodville; by one of the writers of this statement; and at this institution, from the year 1800, as well as the subsequent testimonies of numerous respectable practitioners, seemed to

smarting sensation immediately after inoculation with vaccine or variolous matter, which is not felt after inoculation with either serum of blood, serum of vesicles in erysipelatous inflammation, or puncture with a clean lancet, shows that the stimulation is of a different kind by vaccine or variolous matter from the others here mentioned.

render all further trials as counter-proofs, a waste of time and labour, merely with a view to the question of susceptibility existing for a certain time, at least after the vaccina; and from that confidence, as already said, we have for some time not urged the use of inoculation with variolous matter; yet the number of instances of cases asserted to have been the small pox, in our sphere of practice, has not increased since the variolous inoculation has been discontinued.

“3d. The numerous connections and correspondents of this institution, during the course of four years and a half from its establishment, have not furnished more than half a dozen instances asserted to have been the small pox, after the cow pock at this institution. Of several of these there was no opportunity of investigating the circumstances; but in others we found, either that the supervening eruptions were not those of the small pox, or if, as in one instance, they really were small pox, there was much reason to believe only a local affection had been produced from the vaccine inoculation; and in others the small pox supervened within a fortnight after the inoculation,* therefore, from variolous matter in the constitution before the operation. Besides innumerable instances of exposure to the small pox with impunity, which we heard of weekly during several years, the inquiry for cases to furnish the present statement affords alone a conclusive body of evidence. To obtain the sixty cases of inoculation here published, application was made to at least two hundred and fifty families†, four-fifths of whom would not allow the re-inoculation to be instituted: and the reason assigned by most of them was, that they were sure

* How it happens that the small pox can break out in a week or two from the first day of vaccine inoculation, has been explained in the Report of this institution above cited.

† The search for the subjects of these experiments afforded the opportunity of ascertaining the state of health subsequent to vaccination, and we had the satisfaction to find that most of them had enjoyed as good, or a better, state of constitution, than before vaccination; and that the few in a contrary state, among children, had no reason to impute it to the cow pock; yet where eruptions, or skin complaints had come on, parents generally ascribed them to the cow pock.

the small pox could not affect them, having been so often and so favourably exposed, namely, by sleeping, handling, playing, nursing, and in other ways coming in contact with small pox patients.

“ We were especially anxious to learn whether or not the small pox had supervened in those parts of the country where vaccine inoculation had been practised in the year 1799, for two reasons.

“ 1st. Because of the length of time since vaccination.

“ 2d. Because the characters of the vaccine pocks were not then known, either to the inoculators in the first trials, or to any other persons; not even, to judge from his work, the promulgator. It appears, especially by letters from practitioners who were witnesses in 1799, to the vaccine inoculation of several hundred subjects, under the care of two members of our medical establishment, *viz.* Dr. Pearson and Mr. Keate, that not one has since taken the small pox. Extracts from letters to this purpose are subjoined.

“ Those who have written rather professedly against the vaccine inoculation, have produced from their practice, (which in all probability bears but a very small proportion indeed to that of this institution, and of its members) a much greater proportion of adverse cases than the whole number of even the doubtful ones of the united experience of our body of members.

“ On examination of the history of contravening cases, even as published, we do not find the necessary proofs in many of them, of the eruptive supervening disorders being the small pox: and in others there are wanting the proofs of the cow pock constitutional affection preceding. If it be not thought improper, we would take as an illustration the cases just published by Mr. Goldson, whom we select for his candour.—The 1st, 2d, 4th, 5th, 6th, and 7th, in our judgment, want further evidence to prove them to have been cases of small pox. With respect to the third case, there seems no reasonable doubt that it was *according to the statement, a case of small pox after the cow pock.*

“The same kind of testimonies, in as great proportion, are from time to time published of persons taking the small pox after inoculation for the same disorder; and as some practitioners have inoculated several scores of patients, on the same occasion, and in the same neighbourhood or town, for the cow pock, many of whom have afterwards taken the small pox, so even lately some practitioners have inoculated a set of subjects for the small pox, most of whom afterwards took the small pox by effluvia, or by inoculation. The evidence is therefore even at this day not without exceptions to the efficacy of variolous inoculation.

“However generally practitioners of experience and observation may agree on what is, and what is not small pox, yet now and then cases occur in which there is a difference of opinion; and in employing the test of inoculation with the matter sometimes, such cases were proved to have been, and at other times were proved not to have been the small pox. The same is true with regard to the cow pock.

“Hence then it seems to us that at the utmost, the adversaries can only pretend to maintain two things.

“1. That in a very small proportion of instances, perhaps one case out of several thousands, the cow pock fails to destroy the capability of the small pox in a short time after vaccination.

“2. That in a greater proportion of instances the susceptibility of taking the small pox, will be found to have returned in a longer time, as three or more years after vaccination.

“But we submit to the judgment of the whole medical world, whether or not, considering the body of positive evidence brought forward,—the improbability of a greater number of failures of the cow pock in the practice of certain single persons, (whose whole experience bears so small a proportion to that of this institution, and its connections,) than in the practice of those of an hundred times its extent; and the numerous cases asserted to be those of small pox, which, on investigation, were found to be other eruptions; we say, considering all these points, is it not more probable that the adverse instances are

deceptions* than that they afford exceptions to a law of the human animal economy?"

These considerations, properly attended to, it is hoped will have that due weight in every candid mind to which they are so justly entitled; and if they have that effect, which the editor conceives they must, they will inevitably destroy any kind of doubt which a perusal of Mr. Goldson's pamphlet might produce.

Much more might be said respecting the experiments made on this subject by other gentlemen in Europe, as well as by the physicians of this city, and by others on the continent of America;—but as it is presumed those above mentioned are amply sufficient, so it is unnecessary to occupy our readers with any more; for, if after perusing the above, any should be so sceptical as to doubt, we may say with scripture, “neither would they believe though one should rise from the dead.”

As it may have some weight in the scale of truth to shew, that we have not hesitated to make the experiments on our own children, which we have instituted upon others, and as we have perhaps tried it more frequently in one case, than we know to have been done before, it is presumed the following statement will not be unacceptable.

On the 29th of December, 1801, a few weeks after the introduction of the vaccine into Philadelphia, I vaccinated my son Edward Jenner Coxe, aged three weeks, with infection of the ninth day, then fourteen days old†. The disease succeeded to

* We do not pretend that we are able to prove in what respects the cases were deceptions; on the contrary, in place of rejecting, we must admit them according to the statements; and future observations can alone explain such anomalies.

† The infection employed was taken from a person, who had it excited in her, by virus from the arm of a gentleman to whom I had communicated it from *myself*. It was consequently the third remove from me. Dr. Pearson having denied the possibility of exciting the vaccine after the small pox, I have only to state the above to prove the fact.—*Editor*.

my utmost wishes, no indisposition was perceptible throughout. I tested him with small pox matter on the 20th of January, 1802, and again on the 29th of the same month; on the 18th of February, I repeated it; but all failed. I therefore omitted any further attempt till the 23d of February of the following year, 1803. This failing, I repeated it on the 29th of April, with a similar result. In the present year, 1804, I renewed my attempts, on the 31st. of January, the 29th. of May, and lately on the 20th. of October. These have all uniformly failed, though generally made with fresh infection, taken from persons labouring under the confluent small pox.—In two or three of the attempts, a small pustule appeared, rapidly declining, except once, when from rubbing, it produced a slight ragged scab—which would probably have been the case with any common sore, from a similar accident. I have, besides the above attempts to excite the disease by the insertion of matter, given him the chance of taking it, by above a *dozen* exposures to the natural small pox. He has been held in the arms of persons labouring under it, and has been for a week together, exposed a considerable time daily to patients, brought to me, covered with pustules. This I conceive to be conclusive evidence, not to be overthrown, by cases, problematical at least,—or depending on circumstances not at present perhaps sufficiently understood in the history of the disease.*

EDITOR.

* It is a very astonishing circumstance, that so much clamour should be raised against vaccination, and such doubts excited against its efficacy, from the rumours of a few unsuccessful cases, which, if properly investigated, before circumstances essential to their history are forgotten, would be found to originate in error;—whilst it is not adverted to, that if the vaccine was not an absolute preventive of the small pox; instead of a few (at best) doubtful cases of supervening small pox, hundreds, nay, thousands of cases, not admitting of the smallest doubt, would, ere this, have come before the public. This is perhaps as strong a ground to rest upon, as could be taken. Amidst all this uneasiness also, we see the small pox continually exerting its baleful influence on hundreds of our unfortunate fellow-mortals, who are exposed to it. In New-York, where regular weekly returns of deaths are made, by an inspector appointed for the purpose, we find, that since the beginning of November to the 8th of Decem-

*Extract of an original Letter from Thomas Hackett to
J. & H. Phillips, dated Duck-creek, April 10, 1720.*

“ Since you went hence I wrote you four times, though I have yet heard nothing of you, and impatiently expect a letter from you. I hope you got well home, and it has been of late a great satisfaction to me that you went when you did, for this winter and spring we have been visited in these parts with such a mortality as exceeds the last great plague in London, quantity for quantity of people considered, (as those that remember that say,) in short, it has in a manner laid this place desolate. I cannot recount to you the names and number of the dead; but to give you some notion of the terrible havock, I will name a few particulars. Joseph England lost his wife and thirteen or fourteen children and servants; out of Worral’s family, six people; John Smith, wife, and boy; two children of Empson’s dead, and his wife hardly recovered it; Matthew Corbit and his wife; William Cummins and wife; Isaac Corbit, John Cook, Absalom Cuff and son, all dead; and last week your cousin Sall Mifflin; but these are but a few, for you to guess at the terror of the visitation by. I thank God, brother’s family has escaped yet; and at the manor, Robert Veffy only is dead, though West and Abigail were both sick at the same time also. I have been hitherto well in health, but it strangely surpris’d me; and I fear and expect my fate will be to lay my bones here, though hope, the last thing that leaves man in this world, still relieves me with the thoughts of seeing you next year, as by God’s help I intend to do.”

ber, upwards of 70 persons have fallen victims to its fury. (If the same mortality exists throughout the year, not less than 500 persons must be annually carried off by it.) If the same regular returns were made in Philadelphia, there is reason to believe at least 100 persons would be found to have sunk under this direful scourge during the same period. Let those who advocate the small pox—in opposition to vaccination—think seriously of this!—*Editor.*

As the preservation of even imperfect details of the diseases of our country, is of importance, I have extracted the above from the original letter in my possession. Although it gives us no idea of the nature of the disease adverted to, perhaps there may yet remain some documents on the subject, which may be brought to light by it, and which would be highly acceptable to the editor.—It may not be improper to remark, that this was the year, in which the plague raged with such unprecedented violence in Marseilles.

EDITOR.

Extract of an original Letter from William Monington to Andrew Ruffel, dated Philadelphia, 26th 7th mo. 1700.

“OUR arrival here was in the beginning of corn harvest; the weather grew very hot and fainty, and some of our passengers that went presently to harvest work, spent themselves in the heat, and expired in the fields.

“The heat continued and a sickly time came on; the distemper was generally accounted pestilentious; it seized with a violent pain in the head and back, and caused vomiting blood. Few over-lived seven days after they were taken ill, and very few recovered. From the beginning of the 6th month till the latter end of the 8th month, there died of friends and others, (besides those that were buried in the church-yard) to the number of 170 men, women and children; but afterwards the violence of the distemper abated, and very few died.

“The same distemper, it is said, was very mortal in Barbadoes, and also upon the seas. In the time of the sickness here, arrived the *Britannia* from Liverpool, that brought two hundred passengers and thirty seamen from England; of whom about fifty-eight died on the seas, (as they said of the same distemper*); Thomas Musgrave was one, and several others of them died here.”

* This disease on board the *Britannia*, was, more probably, the jail or hospital fever, produced from the crowded and unventilated state of the ship.—*Editor.*

THE bilious remitting and intermitting fever has prevailed during the last summer and autumn, very generally in the high grounds in Pennsylvania. Dr. M'Clelland gives the following account of it as it appeared in Franklin county, in a letter to Dr. Rush, dated November 17, 1804.

It appeared, the doctor writes, in all the forms of a malignant, common bilious, and intermitting fever. It was so general, that scarcely a family, and in some families scarcely an individual escaped it. The remedies for it were bleeding, purging, sweating, a salivation, and the bark, according to the force, type, and stages of the disease. Few died where medical aid was called soon, and the above remedies used. It was most fatal to the Germans who either neglected to send for physicians, or relied upon quacks. Relapses were very common. They occurred in no case where a salivation became necessary to cure the fever. The extent of the disease may readily be conceived, when it is added, that the doctor administered to his patients ONE HUNDRED AND THIRTY POUNDS of bark in the course of the season, and would have administered more, could he have procured it. He ascribes this epidemic to the warm weather which succeeded the frequent rains in his neighbourhood during the summer, and to the exhalations which were the results of them.

The "*Shamaul*" the hot wind of the desert, is stated by the author of a late voyage to Malta, from the information of a Moor (his friend) to have carried off in the desert, of a caravan of 70,000 pilgrims, one-seventh of the whole, or 10,000 persons, and of his own particular party of 13, nine died.

From the Georgia Republican.

Messrs. LYON & MORSE,

The following case proves that an excess of alkali, sometimes exists in the human stomach.

Being seized one morning with the sickness of stomach termed *pyrosis sputatoria*, called *water-brash* in Scotland and Ireland,

I found mouthfuls of a disagreeable water-like fluid rising from my stomach, accompanied with distressing sensations, and slight inclination to vomit.

I remarked that the fluid did not taste acid. Some chemical tests were at hand: I dipped the end of a slip of litmus paper into some of the fluid, which fell on a board, and perceived no change in the colour of the paper.

I then dipped in the end of a slip of paper reddened by *cæsalpina*, and found that it became similar in colour to the other end of the same slip which had been dipped into alkali.

Concluding that an excess of alkali was present in my stomach, I took a little vinegar and water, and was presently relieved. I took a little more, and was quite well in one or two minutes.

I am, Sir, with respect,

JOHN BRICKELL.

Savannah, August 8, 1804.

Dr. Victor Michelotti, has given in the *Journal de Physique*, Brumaire, year 12---a highly interesting paper, entitled, "Researches respecting the action exercised by Caloric, on the vitality of animals." This experimental essay points out very clearly that animals are more injured by being slowly, rather than rapidly deprived of caloric. His experiments on caterpillars and spiders appear to prove this. The Doctor thought it "of importance to ascertain what would take place during a continued privation of the caloric necessary for the state of life," which, he says, "might serve to explain whether the real death of animals rendered torpid by cold, arises from the want of that caloric necessary to the state of life, or rather from the manner in which they are deprived of it." Several interesting experiments are detailed, made with a view "to ascertain what would take place, by rendering torpid and reviving alternately the animals, or by making them to pass slowly from heat to cold, and from cold to heat, or rapidly from heat to

cold." By those experiments (made on ants) he says, "it is seen that if 9.9 in 100 died of those who were preserved in a state of torpor, on account of the cold continued for eight days, 88.2 in 100 die, of those who are subjected to an alternate and slow privation of caloric, and that 25.5 in 100 die of those who have been suddenly and alternately deprived of the caloric necessary to the state of life."

"But it is still more remarkable," he elsewhere adds, "that if vital beings do not return to life but when they have been speedily deprived of the necessary caloric, this law should be general, as animals exposed to excessive heat, do not return to life but when their temperature is rapidly changed. As this may be easily conceived, I shall mention only one example."

"Of four lively frogs, which appeared to be of the same age, exposed in water to a heat equal to thirty-five degrees, [probably of Reaumur's scale, = 110.3 Fahr.] a degree fatal to these animals, only two, which were immersed suddenly at that temperature in water at sixteen degrees were recalled to life. It is always, therefore, a sudden privation of caloric which leaves organic beings in a state susceptible of life."

The doctor supposes, in explanation of the phenomena he relates, "that the slow privation of caloric produces a greater debility, than rapid privation," and that animals are preserved in life by losing in a speedier manner their caloric, "because the organic parts, by the help of a slow change, assume dispositions which they could not acquire by a sudden privation."

By some experiments of Fourcroy and Vauquelin, read before the National Institute, it appears that the bones of animals differ in composition from those of men. This difference consists in the presence of the phosphate of magnesia in the bones of all the animals they had examined, except in those of man. The method of separating the magnesia from the bones of animals is pointed out, and its proportions in different animals.

These philosophers explain it, from a fact established by them on a former occasion, viz. "that the urine of men contains phosphate of magnesia, and that the urine of animals is free from it. This salt therefore is ejected in man, by the kidneys; it therefore does not enter into the composition of his bones;"

Nicholson's Journal.

"A new earth has been discovered by Professor Klaproth of Berlin, in an ore which was hitherto supposed to contain tungsten, to which he has given the name of *ochroit* earth. "This earth seems to form the connecting link between the earths and metallic oxides," &c.

Ibid.

Suberic acid, mixt with oxalic acid is obtained by the action of nitric acid upon paper, according to Brugnatelli.

Ibid.

Important and curious distinguishing property between the galvanic and electric fluids, by Mr. Cuthbertson, in a letter to Dr. Pearson, dated 27th March, 1804.

"1. Charcoal was deflagrated and ignited for above an inch in length.

"2. Iron wire, one-fortieth of an inch diameter, was melted into a ball one-sixteenth of an inch diameter.

"3. Platina wire, one-hundredth of an inch diameter, was melted into a ball one-tenth of an inch diameter.

"4. Brass wire, one-twentieth of an inch diameter, three-fourths of an inch in length, was ignited.

"5. Brass wire, one-sixteenth of an inch diameter, was red hot at the end.

"6. Iron wire, one-hundred-and-fiftieth of an inch diameter, was red hot for sixteen inches in length.

"7. Iron wire, twelve inches deflagrated, and melted into a ball.

"8. Iron wire, six inches in length, was deflagrated.

“ 9. Iron wire, eight inches in length, was ignited.

“ Two troughs, each trough containing thirty pairs of plates six inches square, were used for the first seven experiments, and one of those troughs only for the two last experiments.

“ The four last experiments, prove, I think, that *double quantities of Galvanic fluid only burn double lengths of wire, and not the square, as electrical discharges do.*” Tilloch.

Two new metals are said to have been discovered in Crude Platina. A paper on this subject by Smithson Tenant, Esq. F. R. S. was read at the Royal Society with an account of their properties. He has given the name of *iridium* to one, from the various colours of it in solution; and that of *osmium* to the other.

Nicholson's Journal.

Joseph Hume, Esq. in a letter to Mr. Tilloch, supposes the iridium to be only *tungsten*.

To the Editor of the Philadelphia Medical Museum.

DEAR SIR,

ACCORDING to my promise, I send you a receipt for making an indelible ink, superior to that imported from London, considerable quantities of which, have lately been sold in Philadelphia.

I am, Sir, with respect,

Your humble servant,

JAMES WOODHOUSE.

Dissolve four drachms of the nitrate of silver or lunar caustic of the shops, in four ounce measures of rain or river water, and when the solution is clear, add to it sixty drops of an infusion of galls, made by pouring a gill of boiling water, on two drachms of powdered galls.

Dissolve one ounce of pearl-ash, in four ounce measures of water, and let it stand until the solution becomes clear.

Dip a flat stick in the solution of pearl-ash, and impregnate the article in the part to be marked with it, and let it be well dried. Then write over it, with a clean pen, having a stiff nib, dipped in the solution of lunar caustic, holding the gallate of silver suspended, and the letters will be formed of a black colour.

When an infusion of galls is added to a solution of the nitrate of silver, the gallic acid unites to a portion of the oxide of silver of the nitric solution, and forms gallate of silver, which remains for a short time suspended in the solution, and makes the ink, which consists of gallate and nitrate of silver, flow from the pen in an equable manner.

When the ink comes in contact with muslin, linen or cotton, impregnated with the solution of pearl-ash, a double elective attraction takes place. The gallic and nitric acids, unite with the pearl-ash and form gallate and nitrate of pearl-ash; the carbonic acid of the pearl-ash joins the oxide of silver, and makes carbonate of silver, which is deposited upon the part written.

When articles, marked with this indelible ink, are washed, the gallate and nitrate of pot-ash, being soluble in water, are carried away, and the carbonate of silver remains behind.

When the gallate of silver has fallen to the bottom of the nitric solution, the vessel containing it, must be frequently shaken, to keep it suspended.

The quantity of ink, mentioned in this receipt, will fill forty bottles, of the size imported into this country.

The pot-ash contained in the vials brought from London, is coloured with cochineal or red saunders.

It is with pleasure we notice the formation of a new society by the medical characters of Savannah---under the title of the "Georgia Medical Society." It was organized in June---when the following officers were elected: Dr. N. W. Jones, president; Dr. J. Irvine, vice-president; Dr. L. Kollock, treasurer; Dr. J. Grimes, secretary.

AMERICAN PHILOSOPHICAL SOCIETY.

THE thanks of the American Philosophical Society are presented to the following persons, for the *Communications* and *Donations* affixed to their respective names.

JOHN VAUGHAN, Librarian.

Philadelphia, October 19th, 1804.

COMMUNICATIONS.

A Memoir on the Improvement of Agriculture and the useful Arts. By A. Fothergill, M. D.

An Essay on the Precession of the Equinox, signed Julius, and intended for the Magellanic premium.

An Account of his Temporary rudder. By Capt. William Mugford of Salem, Massachusetts.

An Appendix to his Memoir on the Mississippi, published in vol. 6, p. 165, of the Transactions. By William Dunbar, of Natchez.

DONATIONS.

An Indian Hatchet. By Major Rivardi.

Specimen of Sulphate of Magnesia found in Virginia, in the cave in which the bones of the megalonyx were discovered. By William Hembell.

Various specimens of Gypsum from France and from Nova Scotia. By John Vaughan.

FOR THE LIBRARY.

Modern Geography digested on a new plan. By John Pinkerton. Article of America corrected and enlarged by Dr. Barton, 2 vols. 8vo. and an Atlas of 68 maps. Philadelphia, 1804. Presented by John Conrad and Co. publishers.

The Life of Washington. By John Marshall. 1st and 2d vols. 8vo. Philadelphia, 1804. Given by C. P. Wayne, publisher.

The Wars arising out of the French Revolution. By A. Stevens. 2 vols. 8vo. Philadelphia edition, 1804. By Bioren and Plowman, publishers.

Juntas Publicas de la Sociedad de los Amigos del Pays de Valencia, from 1799 to 1801. 3 vols. 4to. By the Society.

The Ninth Volume of the Transactions of the Historical Society of Massachusetts. By the Society.

Vocabulary in eight Languages. By Major Rivardi.

Travels in Turkey, Egypt, &c. By William Wittman, M. D. 8vo. Philadelphia, 1804. By James Humphreys, publisher.

Miscellaneous works of David Humphreys. 8vo. New-York, 1804. By the Author.

Valedictory address, delivered before the Cincinnati of Connecticut. By David Humphreys. 8vo. Boston. By the Author.

Papers on Agriculture, published by the Massachusetts Agricultural Society. 8vo. Boston, 1804. By John Vaughan.

Brathwaite on the utility of the oxygenated muriatic acid in the Scarlet Fever. 8vo. London, 1804. By Joshua Gilpin.

Mathematical Correspondent, No. 1 and 2. 12mo. New-York, 1804. By the Proprietors.

Explanation of Hoppe's improved Sextant and Azimuth Compasses. London, 1804. From the Author, by R. Patterson.

Rev. Dr. Valpy's Reply to the British Critic. London, 1804. By A. Fothergill, M. D.

Abregé concernant la Cosmologie, & la Geologie, par J. A. de Luc. 8vo. Brunswick, 1803. From the Author, by Dr. Barton.

Nature Displayed, in her mode of Teaching Language to Man, adapted to the French. 2 vols. 8vo. Philadelphia, 1804. By N. G. Dufief, the Author.

NEW PUBLICATIONS.

AN Essay on the analogy of the Asiatic and African plague and the American yellow fever, with a view to prove that they are the same disease varied by climate and other circumstances. By Phineas Jenks, of Pennsylvania, honorary member of the Philadelphia Medical and Chemical Societies.—Philadelphia---Maxwell, 1804. 8vo. pp. 52.

It is well known that of late years the idea of the contagious nature of the plague has been opposed by several eminent Physicians. Our author in his preface informs us that when he commenced his inquiry, he was inclined to favour the doctrine of the plague being a contagious disease, but that his researches, and the mass of facts he has collected, have convinced him that his opinions were erroneous, and that he had fallen into a popular mistake.

The first part of the essay itself is taken up with a view of the supposed origin of the plague by the Egyptians : at this enlightened era, it is added, it is no ways astonishing that such vague and unmeaning conjectures should be overthrown and superseded by theories which have at least probability to recommend them to the world, and that he shall endeavour “to make it appear, that it is the natural effect of physical causes; or, in other words, the effect of the decomposition of vegetable and animal matters.” His reasons for this opinion are then detailed, and are followed by a cursory view of the origin of the yellow fever, which, like the plague, he observes, is unknown in cleanly situations.

The analogy between the two diseases is then brought into view, and an explanation is attempted why they sometimes vary. This analogy is pursued under several heads.

The greater fatality and shorter duration of the plague, are accounted for on the principles of climate and other circumstances. The different grades of plague and yellow fever are noticed; as likewise their different symptoms in different

years. Among others, the Sudor Anglicanus, or sweating sickness, is considered as the plague appearing with a determination to the skin.

Those diseases, which are truly contagious, as small pox and measles, it is observed, cannot be taken a second time, whilst both plague and yellow fever may be repeatedly taken. An instance of death at Constantinople, from a twelfth attack of plague is mentioned; and the repeated attacks of yellow fever in several of our citizens are also noticed.

The non-occurrence of these diseases every year, under the *same circumstances* of filth, it is supposed, may depend, “in some degree, upon the heat of the sun in cool summers being insufficient to cause putrefaction and exhalation, but principally upon a coinciding malignant state of the atmosphere.”

The existence of this malignant state of atmosphere is inferred from several circumstances.

A view of the diseases, preceding and succeeding both plague and yellow fever, furnishes the author with a still further analogy between the two diseases, as also do their precursors. The empire which they both assume over all other diseases when they are epidemic, is supported by the authority of Sydenham, Huxham, and Diemerbroeck, as well as by the revival of those vanquished diseases after the decline of the epidemic.

The two diseases under the same circumstances, are asserted to yield to the same remedies, though these remedies differ in different years.

The contagious nature of these diseases, next occupies the author's attention; which he opposes from various sources with much success. He does not deny that “under certain circumstances they may be communicated from one person to another, by what has been happily called the *contagion of excretion*. He asserts however, that there is nothing specific in those excretions; “but that a disease arising from them, would be as apt to become a yellow fever, or a typhus fever, as the plague.”

With respect to the yellow fever, our author says, that in “1793, when it first made its appearance, it was universally

believed to be contagious ; but later experiments have taught many of our physicians, that their observations were too hastily made, and their opinions prematurely formed." The number of physicians that died in 1793, though brought forward as a proof of its contagious nature, does not, he thinks, militate against his doctrine ; " for those physicians were debilitated by their previous labours, and consequently, were constantly predisposed to the disease. They were also in the habits of frequently visiting parts of the city, where its causes obviously existed in the most concentrated state." The exemption from this disease of many physicians of the city, as also of the apothecaries and attendants at the hospital established for the reception of yellow fever patients, are very properly adduced as stubborn facts against the doctrine of contagion. The allowed absence of contagion in the pure air of the country, by the favourers of the doctrine, is adverted to by the author, who asks, " If then it requires a foul atmosphere, or in other words, a situation where putrefaction and exhalation exist, (for without something of the kind, no atmosphere can be contaminated) why may not those causes alone produce the disease ?

The practice pursued in Aleppo, Grand Cairo and elsewhere, of shutting up, during the prevalence of the plague, without supposing it to be contagious, is highly commended by the author, as preventing the action of exciting causes upon the seeds of the disease floating in the system.

The causes which destroy the sources of exhalation, as extreme heat, heavy rains, &c. are alike injurious to both diseases.

The author then enumerates some of the disadvantages arising from the doctrine of contagion ; and concludes, that he has " now traced the analogy of the plague and yellow fever through their causes, symptoms and duration, and cure ; and it must appear very obvious that they are one and the same disease, differing only in the degrees of force from the excess of their causes. To contend, therefore, that they are different and specific diseases, would be as absurd as to declare, that a yellow fever could not exist without a black vomit, or that an inflammation of

the lungs was not a peripneumony, because there was an absence of pain.*"

Elements of Life, or the Laws of Vital Motion, by John Rush, M. D. &c.---Philadelphia---Palmer. 8vo. pp. 34.

The author of this little tract, has with great ingenuity attempted to subvert the prevailing opinions of animal life—in order to establish one, founded on the laws of chemical action. This doctrine, which has been lately promulgated in Europe, is as yet in its infancy in the United States. It is said to contain "the substance of a speech, which the author delivered before the medical society of Philadelphia."—We are ignorant if the doctrine has gained many profelytes in Great Britain, &c. but we understand, the present professor of chemistry in this university, is a decided supporter of it. Whether it will not meet the fate of its predecessors, time will evince.

The Philadelphia Medical and Physical Journal. Collected and arranged by Benjamin Smith Barton, M. D. Professor of Materia Medica, Natural History, and Botany, in the university of Pennsylvania.—Part 1. vol. 1. Philadelphia. 1804—8vo. pp. 184.

This work is divided into four parts—"1. ORIGINAL COMMUNICATIONS relative to all the branches of *medicine, natural*

* Several errors occur in the printing of the Theses, such as *tartite* for *tartrite*, *Columna Carneæ* for *Columnæ Carneæ*, &c. In such small treatises, more attention should certainly be paid to the correcting of the press. In one of the Theses (on Mercury,) we have in a note a prescription for the preparation of the antimonial powder: it is a compound of Latin and English; and from great inattention is rendered highly dangerous, as we are directed to use *muriate of mercury* (corrosive sublimate) instead of *mild muriate of mercury* (calomel). Such errors are surely very disgraceful to the University; and lead me to suggest to the respectable Faculty of medicine, the propriety of having a printer connected with their department, for the purpose of printing the Medical Theses. By this measure, it is presumed, correctness will be acquired by habit, and uniformity of size and type will be preserved. By this measure also, no difficulty will exist in binding up a volume, (as at present is frequently the case,) especially if the graduates themselves, would distribute their dissertations *uncut*.

history, and *physical geography*. 2. BIOGRAPHICAL SKETCHES of the lives of eminent physicians and naturalists, especially those of the last half of the 18th century, and of the present time. 3. REVIEWS of, and EXTRACTS from new publications in medicine, natural history, and geography, especially those which have been published in the United States, or which have a particular reference to this tract of country, &c. 4. MISCELLANEOUS FACTS, of various kinds, all, however, relating to the expressed objects of the work."

The respectable editor of this work, has evinced his partiality for the profession in which he ranks so high, by his endeavours to extend his information to society at large. As this is a work not exclusively medical, but largely appropriated to the natural history of our country, so it will be perused with pleasure by all those who are anxious for information on this head: As the various branches of this pleasing study are pursued with great industry by the professor; we may hope in a few years to have a copious reservoir of all that is interesting to our country, in this department of science.

Friendly Cautions to the Heads of Families, &c. &c. &c. by Robert Wallace Johnson, M. D. &c.—Philadelphia edition. J. Humphreys.—1804. 12mo. pp. 163.

We cannot but feel a sincere pleasure, in observing the frequent emission from the presses of the Union, of so many works of merit, reprinted from the European editions. Whilst it evinces the increasing state of literature amongst us, it is a sure pledge that when our own citizens shall find time to devote themselves to scientific pursuits, no encouragement will be wanting. Among the various publications, none have afforded us more gratification, than the one whose title is hereto prefixed; we have perused it with that satisfaction, which its merit must ensure, both from the character of its author, and the extensive advantages it is calculated to produce. The merit of this work (heretofore unknown amongst us), is sufficiently evinced by its having passed through three editions in Great Britain. As the editor has justly observed, "It is not

to one description of persons alone it will prove useful, but to every class of society. As long as sickness is a concomitant of humanity, so long will this, or some work of a similar nature, retain its estimation. Its value may not be perceived by persons in health, but when sickness finds access to some beloved friend, this little treatise will be regarded with pleasure."—With a similar impression—we cannot but recommend it as a fit present for every family, and sincerely wish it may be as beneficial to the active and benevolent publisher, as it is certainly calculated to be to the sick of every description.

We hear with great pleasure that professor Rush is preparing for the press a new edition of his valuable medical works, to be comprised in three volumes;—with many additions and improvements. This edition will appear in the course of the ensuing year. The high opinion entertained in all parts of the world, where medicine is cultivated, of this indefatigable physician, cannot but render this information as gratifying to others, as it has proved to the editor.

Dr. James Hutchinson of Philadelphia, is engaged in preparing for the press, a Treatise on Ulcers—particularly of the lower extremities. It will appear in the course of the ensuing year.

DEATHS.

AT Versailles, aged 79, Francis Dezoteux—formerly consulting surgeon of the camps and armies of the French king. He was one of the physicians to whom France was indebted for the introduction of the inoculation of the small pox.—He was obliged to carry on a celebrated process against the parliament of Besançon, which had declared against inoculation. He lost his whole fortune in the revolution.

On the 24th of last August, at Milan, the Abbate Fontana, one of the most celebrated naturalists of Europe.

In March last, John Relph, M. D. senior physician to Guy's hospital, and author of "an Inquiry into the Medical Efficacy of Yellow Bark."

The Rev. John Walker, M. D. professor of natural history in the university of Edinburgh.

Thomas Percival, M. D. &c. of Manchester, England, a gentleman well known by his numerous medical and philosophical writings.

NOTICE TO CORRESPONDENTS.

Dr. Farquhar's paper on the Angina Maligna, is received, and will appear in our next number.

Dr. Dewees's "Examination of Dr. Osburn's opinion of the physical necessity of pain and difficulty in human parturition," is received, and will appear in our next.

Several other communications from the same gentleman, and others, are received and will appear in order.

MEDICAL MUSEUM.

VOL. I....No. III.

DR. DRYSDALE'S *History of the Yellow Fever at Baltimore*, continued from page 149.

LETTER VII.

MY last contained remarks upon purging in the yellow fever; we will now proceed to another important remedy,

Blood-letting.

He who has imbibed from authors ideas of putrefaction, will hear with amazement—blood-letting recommended in a disease which he has believed to be of a putrid nature. But the more attentive observer of nature, whose guide is reason, and whose object is truth, will be astonished only at the influence, which a false and destructive hypothesis has so long undeservedly occupied in the schools of medicine.

Could hemorrhages have given rise to the opinion of putrefaction in fevers? The hemorrhages from the nose and from the lungs, in the different periods of life, prove that this cannot be the case.

Does the appearance of *petechiæ* prove putrefaction in the blood? Did their occurrence even in typhus fever itself, depend on this cause, why should not our conclusions be established by the hasty putrefaction of the bodies after death? But *Hamilton, Lind, jun.* and *Moore*, have remarked, that this circumstance proceeds more slowly in such bodies than in others. That *petechiæ* originate also from excessive violence of action of the blood-vessels, might be proved by innumerable facts. I know that they attended a violently inflammatory hepatitis, and were removed by venæsection. *Sydenham** abounds with facts of a similar nature. *Pringle*† relates a curious instance of their appearance below the ligature placed on an arm during venæsection. “Petechial or purple spots,” says *Moseley*, “seldom accompany the remitting fever in the West Indies, unless the circulation has been forced with cordials or hot regimen.”‡ *Bartholine* in his description of the fever of 1652, observes, that *petechiæ* appeared in the exacerbations, and disappeared in the remissions. This circumstance occurred in several cases of the yellow fever.

Can the *yellowness of the skin* be attributed to a putrefactive dissolution of the blood? It is now too well known to depend upon suffusion of bile, to be ascribed any longer to such a cause: nor does the superabundance of bile prove the putrefaction of the blood, though long supposed to be the offspring of putrefaction, and to tend more rapidly to that condition, than any other fluid of the body. It has lately been proved that the opinion is without foundation. The blood flowing through the *venæ portarum* putrefies more slowly than that which has just circulated through the lungs; and the bile secreted from it, is much later in entering that process than the blood of the same animal. This has been clearly demonstrated by an experiment related in the inaugural thesis of your late pupil, *Dr. J. R. Cox*.§

* See pages 88, 400, 403, 548, and 553, of Swan's edition.

† Page 304, 8vo. edition.

‡ Page 94.

§ Inaugural Essay on Inflammation, page 31.

Yellowness of the skin occurs also very frequently in a common ague; and who will term this, or jaundice, a putrid disease? Let me ask also, how any person can recover health, after this colour had appeared over their bodies, if it depended upon a putrefactive dissolution of the blood?

But what testimony of putrefaction in a living body can be deduced from the speedy putrefaction of dead bodies?---Animals killed after a chase are disposed to speedy putrefaction. "The bodies of men, who die of violent passions, or after strong convulsions, or even after great muscular exertion, putrefy in a few hours after death." The violent emotions which precede death in these cases, must have induced such great disorganization throughout the body, as to have destroyed, as it were, its texture, and thereby have disposed the more to its early dissolution. That the circumstance depends rather on the excessive derangement produced, than on the actually putrefactive nature of the disease, derives additional support from the following facts: Fishermen, says *Wilson* and other authors, produce sudden extinction of life in fish by crushing their brains: they are by these means preserved from putrefaction longer than those which die gradually after convulsive emotions. The bodies noticed by *Ferriar* from *Dr. Hamilton*---those by *Lind, jun.* and *Moore*, ought to have putrefied rapidly, upon account of the diseases of which they died, had this process already commenced previously to the loss of life. The conclusions drawn from these circumstances in favour of the inflammatory disposition of the yellow fever, are strengthened by your observation, that those bodies putrefied most rapidly during the prevalence of the disease in your city, whose violent commotions had not been opposed by evacuations. I had not an opportunity of attending to this circumstance in Baltimore; the bodies were hurried away to their graves almost immediately after death. Are we not informed that bodies dead of nervous diseases, such as tetanus and hydrophobia, quickly rush into putrefaction?

But passing by these points of useless controversy, let us review some of those symptoms of the disease itself, and the

opinions of men conversant with it, by which we are authorised to call in the aid of venæsection. A pulse uniformly tense; the great advantage resulting from the appearance of the catamenia; the congestion of the brain indicated by the suffused face and red eye, would lead us to the use of that remedy: and why should we hesitate to have recourse to it, when we are assisted by the experience of so many celebrated physicians?

I shall now consider the effects of blood-letting in the yellow fever.

1. When the pulse was very frequent, venæsection rendered it more slow; when very slow, it gave it frequency; and when depressed and small, it gave it fulness. This latter circumstance is often remarked by Sir John Pringle, in the remitting fever,* and by Donald Monro, in dysentery.

2. Venæsection removed the delirium and the comatose state, with which the sick were tortured or oppressed: it likewise removed wakefulness; and very frequently acted like an anodyne—being succeeded by two or three hours of refreshing sleep.

3. It promoted the operation of the calomel in opening the bowels. Hence I have frequently heard the patient call for the close-stool, while the blood was flowing from his arm, although the bowels had previously appeared obstinately costive †

4. It checked the violent vomiting in the first stage of the disease, which had resisted every other remedy: and when a hiccup accompanied its first attack, it yielded to the same remedy.

5. It was frequently succeeded by a general perspiration, and sometimes by a profuse sweat.‡

6. It removed the sense of oppressive weakness, and inspired the patient with new strength and vigor.§

7. I have seen in a great number of instances the dilated pupil contract, while the blood was flowing from the vein.

* Pages 181, 185, 186, &c.

† See Cleghorn, page 197.

‡ See Cleghorn, page 200: and Sydenham, page 92.

§ See Sydenham, page 98.

Sometimes the first bleeding caused it to contract to a certain limit; but succeeding venæsections reduced it to its natural dimensions. After one bleeding the pupil has again dilated itself; but after a second it again returned to its proper state.

8. Blood-letting mitigated and removed the pains, that tortured the patient even to madness. While the blood was flowing from the arm, I have observed the pain totally vanish from the head---and that in the back lose its intolerable poignancy. I believe I have formerly mentioned, that a mitigation of pain in one part sometimes alternated with its exacerbation in another. A respite from torture would follow venæsection for an uncertain period of time; but it frequently returned, and again demanded a repetition of the remedy.

9. But the pains did not always vanish after blood-letting; they were frequently *increased* after one or two detractions of blood. Where pain had been felt only in the head, one bleeding has caused it to rage also in the back and limbs. This occurrence was not new to me: I had formerly bled an old negro man, who complained of some fever, and considerable pain in his breast: He lost one pound of blood, but in the succeeding hour, the pain had so much increased, and had become so intolerably acute, that I was obliged to permit the blood to flow, until it induced an amendment of his state: This was effected by the additional loss of twenty ounces, by which his cure was completed. Whenever this circumstance may occur in the yellow fever, the increase of pain ought not to deter us from a repetition of blood-letting: a second or a third bleeding may be requisite to subdue the violent motions, to which the vessels had been restored by the first.

10. The same principle will explain also another circumstance not unfrequently occurring in this disease; all the other symptoms of fever would be present, except a *hot skin*. The loss of blood would relieve the oppression of the vessels, and, by restoring them to a morbid degree of action, produce the burning skin. Sydenham in his account of a new fever, 1685, remarks the fact: "All the symptoms of weakness

proceed from nature's being in a manner oppressed and overcome by the first attack of the disease, so as not to be able to raise regular symptoms adequate to the violence of the fever. I remember to have met with a remarkable instance of this, several years ago, in a young man, I then attended; for though he seemed in a manner expiring, yet the outward parts felt so *cool*, that I could not persuade the attendants he had a fever, which could not disengage and shew itself clearly, because the vessels were so full as to obstruct the motion of the blood. However, I said, they would soon find the fever rise high enough from bleeding him. Accordingly, after taking away a large quantity of blood, as violent a fever appeared, as I ever met with, and did not go off, until bleeding had been used three or four times."*

11. In the camp remitting fever, says *Pringle*, the remissions usually appear from the beginning, and especially if the patient is bled in the first attack.---In the yellow fever, bleeding, if used quickly after its attack, brought it to a close on the first or second day in a variety of instances. In some, the disease disappeared almost immediately after the salutary aid of venæsection. Some cases of considerable violence terminated favourably, although this remedy had been deferred until the third day; but later than this period, it seldom proved serviceable. The system had already suffered irrecoverably from the unopposed convulsive action of the vessels.

12. In all those cases, which terminated fatally, notwithstanding the use of blood-letting and purging, these remedies preserved a continued serenity and soundness of mind, until the stream of life had ebbed forever. They smoothed the passage to the grave, and made the transition from life to death, resemble the gentle and gradual approach of sleep.

13. The convalescence was generally rapid after the free use of calomel and the lancet. Cleghorn in his account of the pleurisy, &c.† says that---“it was no less remarkable to ob-

* Wallis's edition, vol. 2, page 351.

† Page 282.

serve, how quickly the sick recovered their usual health and strength, notwithstanding the great loss of blood they had sustained; while many, who had been bled more sparingly, continued in a languid infirm state for months, without being able to get rid of the cough and pain in the breast."

From the preceding circumstances, we may decide with certainty in favour of venæsection in the yellow fever; and so long as facts are to be preferred to unfounded assertions and baseless hypotheses, blood-letting will maintain its power over the present disease. Climate may diversify its symptoms, and season may vary its form; but the rational physician will always discover the influence of climate and season, and from symptoms alone determine the greater or less necessity for the lancet.

We may now inquire into the causes, which regulated the use of venæsection.

1. This operation must be performed as soon as the symptoms of the disease called for its aid. If it were deferred until a purge had acted, several hours were unavoidably lost; and too frequently the lapse of a few hours was followed by the loss of life. We have observed, that the operation of a purge was accelerated by the loss of blood, and that the two remedies co-operating together, excited a general sweat. No time, therefore, should be lost in opposing to the destructive exertions of the fever, the salutiferous effects of venæsection.

2. "Si vehemens febris urget," says a father of medicine, "in ipso impetu ejus sanguinem mittere, hominem jugulare est. Expectanda ergo intermissio," &c. But *Pringle** has taught us to act differently and with advantage. In the exacerbation of the yellow fever, I found bleeding not only admissible, but accompanied also with the most eminent good. It brought it sooner to a close, and very frequently retarded the approach, or moderated the vehemence of the succeeding paroxysm.

3. If the pains persevered with unabating severity, and if the pulse preserved its tension in the remissions of the fever,

bleeding was still forcibly required. It very frequently converted a remission into a complete intermission, followed by the return of health; or moderated the violence and duration of the ensuing exacerbation.

4. If the fever appeared in the form of an intermitting tertian, and allowed the patients to pursue their wonted occupations on the intermediate days, blood-letting could not be omitted, whenever the tense pulse indicated the necessity of its aid. Even during the intermissions of the fever, I was led by the continuance of tension in the pulse, to call in the assistance of venæsection, with the most obvious advantage. The knowledge of some cases, which had commenced their career in the insidious disguise of a tertian, but soon discovered themselves by a fatal termination, encouraged me to the practice I pursued: for surely too much prudence could not be summoned to anticipate and prevent such an unfortunate event!

5. In some instances, as I have observed in a former letter, the patients were not confined to their beds---but extremely oppressed with undescribably anxious feelings, &c. walked through their rooms. Bleeding was in these, as requisite to obviate death, as in many other cases apparently more severe.

6. *Donald Monro* has informed us of the oppressed pulse in dysentery---*Cleghorn* and *O'Connel*, in pleurisy---*Sydenham* in peripneumony---*Moseley* in the yellow fever, and *Pringle* in various diseases;---and from them all we derive the most pleasing assurances of the utility of blood-letting. Emboldened by these great examples, and still further encouraged by yourself, why should I hesitate to use the lancet in this oppressed condition of the pulse?* The loss of blood removed this dangerous oppression, and permitted the pulse to regain a frequency commensurate with the more obvious symptoms of the disease. And even when the pulse was so oppressed as to have become almost imperceptible, while violent pains marked the severity

* The following case extracted from Dr. Jackson's "Remarks on the constitution of the medical department of the British army," &c, exemplifies strongly

of the disease, venæsection was performed with the utmost advantage---and was followed by a remarkable rising of the pulse.

7. From the appearances, which the blood exhibited, and which I have described to you in a preceding letter, no certain directions for regulating venæsection could be drawn. In the early stage of the disease, and in those cases in which nature

the utility of copious blood-letting in the depressed state of the system, and will doubtless have great weight with every practitioner.—*Editor.*

“Robert Thomson, head surgery-man, was attacked on the 29th of December with symptoms of fever of uncommon alarm:—the head-ach was intolerable, with an oppressive sensation in the body as if the chest were squeezed in a press; the countenance was dark and agitated; the hands and all the members tremulous and unsteady, as in St. Vitus’s dance; the heat deep and concentrated; the pulse small and labouring;—the expression of distress great. He was seen by the physician into whose hands he was likely to pass in a day or two. That gentleman did not prescribe, for he had not yet entered upon duty; but but he noticed the danger of the case. When the business of the ward was finished, Thomson was again examined, for his case required more than common attention. The physician alluded to was not present; but the assistant-surgeon attended, and bound up the arm, in order that some blood might be taken away; for though the symptoms were not such as are ordinarily thought to indicate bleeding, yet bleeding appeared to be a preliminary remedy, and the only one which was capable of averting organic destruction. The operation was therefore determined upon. One pound of blood produced no material change; two only little relief: but an indication arose in the course of the process, giving reason to believe that the purpose would be attained by perseverance. The blood was therefore permitted to flow;—three pounds removed the head-ach and the pressure from the chest; the labouring tumult of circulation, as communicated by the pulse, disappeared: eight ounces more, in all fifty-six, released him, as he expressed it, from chains and horrors. The countenance brightened up,—he neither became faint nor pale. The extremities,—the legs and thighs, were wrapt in flannel wrung out of hot water; the chest was covered with a very large blister; emetic tartar, with opium, was given, in a manner, and with a management, intended to direct the effect of the remedy in operation principally towards the skin: tea or buillon was given for drink, and ordered to be drank very hot. In three or four hours, there were signs that the danger of the disease was past; and in four days he returned to his duty. He got neither wine nor strong drink.”

seemed too much oppressed to excite the regular phenomena of fever, the blood sometimes appeared considerably dissolved; but in succeeding bleedings it had acquired a firm consistency. When the disease had advanced, unopposed by the lancet, so far as to have induced the appearance of the blood, noticed in No. 5.* it was in vain to attempt rescuing the patient from the grave. I saw no instance of a recovery after this state of the blood had been produced.

8. The suffusion of large red blotches over the body accompanied a most inflammatory case. Too much time had been irrecoverably lost, when bleeding might have been profitably employed, in reducing the violent commotions of the system. That appearance resembling mosquito bites, was most obviously influenced by venæsection; but might we not have expected this, after observing its great dependance on the exacerbation of the fever?

9. The quantity of blood requisite to be drawn, varied with the weather and the degrees of indirect debility. “*Ne pondus hic quidquam aut mensura determinat, sed morbi levamen.*”†

As the weather became cool, and the degrees of indirect debility became less great, and less rapidly progressive, a large quantity of blood was drawn safely at a time. It might be permitted to flow, until the pulse began to lose its fulness and tension, or until the pains began to moderate. It sometimes required twenty ounces to produce these effects; but if these failed, it was prudent to delay the detraction of more until a few hours had elapsed. In some cases it was not only safe but proper, to draw sixteen or twenty ounces of blood, every six or seven hours, or more frequently, till the violent symptoms had abated. It might be then repeated, and proportioned according to the occasional return of the pain in the head, or of the other symptoms of the fever. Sixty ounces were drawn in twenty hours, in a violent case, with the most desirable

* Of the appearances of the blood in a former letter, page 138.

† De Haen.

event. I may remark in this place, that as the weather became more cool, the disease yielded more slowly to the remedies, than it had done during the prevalence of great heat. The greater violence of the fever at the latter period, required more expedition in the administration of remedies, but yielded to their influence with more facility. The uninterrupted heat of summer had relaxed the blood-vessels, and as they obeyed more speedily the action of stimulating powers, so they yielded more readily to the means of opposing them. But when they had acquired firmness and density from cold, they necessarily required more powerful causes to subdue them, and therefore longer resisted their exertions.

Though the effects of cold called for plentiful bleedings, yet the continuance of heat allowed only small evacuations of blood in the first hours of the disease. High degrees of indirect debility, require a gradual abstraction of its causes, for in proportion to its excess, stimuli should be more slowly withdrawn.

Thus, in the plague, while bleeding, according to *Hodge*, did harm, yet—"a hundred times the quantity of fluids was discharged in pus from buboes, without inconvenience." He observes also, that bleeding, as a preventive of the plague, was only safe and useful, when the blood was drawn by a small orifice, and a small quantity taken at different times.

The pestilential fever of Montpellier, in 1623, was successfully opposed by *Riverius*: he drew at first two or three ounces of blood, and after a few hours he again drew twice that quantity, and by these means he saved the lives of the sick, while other methods failed to subdue the disease.

The beneficial consequences of sweating in the plague, as recorded by *Sydenham*, cannot be ascribed solely to the quantity of fluid evacuated, but also to the gradual manner in which it was subtracted.—*Pareus* mentions the case of a patient, who was saved in the plague by a hemorrhage from the nose, which continued two days,—although he had condemned just before the admission of blood-letting. *Dr. Williams* relates

recoveries from the yellow fever by hemorrhages from the nose, after “ a vomiting of black matter and a hiccup had taken place.” I saw a similar instance ; but might not the hemorrhage have been an effect rather than a cause of recovery ? Might not the heart and larger arteries have acquired so much healthy vigor, as to have ruptured the smaller weak vessels of the nose ?

The good effects produced by the occurrence of the catamenia, and by the accidental flow of blood from orifices in the arm in several cases, I am willing to ascribe in a great measure, to the gradual manner in which the fluid was evacuated. No sudden collapse of the vessels ensued, to give a shock to the whole system.— The profuse sweats, which sometimes occurred on the first day of the fever, although they were not accompanied with sensible relief, yet, I am of opinion, moderated the violence of the disease. The quantity of fluid discharged, must not only have diminished the oppression of the vessels, but the moderate manner in which it passed away, must also have been productive of advantage.

From the preceding circumstances, it must appear, how extremely requisite it is, to consult the states of the weather and of indirect debility, in determining the quantity of blood proper to be drawn. Bad effects can only follow, from the quantity of stimulus abstracted being disproportioned to the degrees of indirect debility.

Fainting, or a tendency to faint, so usual in common inflammatory diseases, after venæsection, almost never occurred in the yellow fever. I saw but one instance—and this took place after the loss of two or three ounces of blood, in an advanced stage of the disease. Weak women lost fifteen or twenty ounces, and delicate girls of nine years of age, lost twelve or more ounces, without being affected with any inconvenient consequence. I generally pursued *Van Swieten's* advice, of keeping the patient in a supine posture during the performance of venæsection ; but even in an erect position, fainting did not occur. Many persons lost much blood without incon-

venience, who informed me, that they had never been bled before in any situation without fainting. In common cases in which venæsection is performed, a degree of collapse immediately follows the abstraction of the blood and induces fainting: but in the yellow fever, the loss of blood, by removing oppression from the vessels, generally restored them to a facility of action, which they did not before possess. To the absence, therefore, of that collapse, or suspension of action, succeeding to the depletion of the vessels in common inflammatory cases, we must ascribe the non-occurrence of fainting in the yellow fever.....ADIEU!

LETTER VIII.

IN my last letter, Sir, which I had the honour of addressing to you, I considered the subject of blood-letting. Its excellent effects in the yellow fever were then related, and the principles, upon which it was admitted and regulated, cursorily mentioned. I will now notice some objections, which were made against this remedy; the weakness of some of them might excite our ridicule, did we not feel too much pity and vexation, that they should originate from men, who presumed to call themselves physicians.

It was objected to blood-letting, that,

1. It was improper and inadmissible in diseases of autumn.— This objection is too frivolous to be refuted.
2. That one or two bleedings might be admitted, but if repeated more frequently, injurious or fatal consequences must ensue.

While directed by symptoms only, we can never bleed too frequently in any disease; and I will venture to assert, that no very violent case of the yellow fever was cured by one or two

bleedings. How many persons have been lost, not only from the total want of venæsection, but also from its too moderate use ! It had been better to have rejected the lancet entirely from our hands, than to have employed it in so frugal a manner. The ninth section on the effects of blood-letting, points out the increase of violent symptoms, occasionally following the first or second operation : but a rational view of the cause brought down the disease so as to be cured.

It argues a very imperfect knowledge of the nature of the yellow fever, to ascribe the fatal termination of a very severe case, to two or three blood-lettings, which had been used in its course. Perhaps, if no blood had been drawn, the case would not have terminated with more certain fatality ; but, from experience I will hazard the assertion, that if twice this number of bleedings had been performed early and judiciously, the patient's chance of recovery would have been more than proportionally increased. *Sydenham* speaks of similar ill effects of too-sparing venæsection in the plague ; and has given the words of *Botallus* also upon the same subject :---“ But if our fears be so great, and we take away so small a quantity of blood, how is it possible to judge exactly, what good or mischief, bleeding may do in the plague ? For if a disease (which requires four pounds of blood to be taken away in order to its cure, and yet but one is taken away) destroys the patient, it does not therefore prove destructive, because bleeding was used, but because it was performed in an improper, and perhaps in an unseasonable manner : but ill-designing or indolent men, always endeavour to lay the fault on that, not because it did really do mischief, but because they vilely desire to give every body an ill opinion of it : Or supposing they do not do it out of wickedness, they cannot be excused from ignorance and perverseness, both which are doubtless pernicious, but the former much more so.”

A circumstance very applicable to our present subject occurs to me, as related by that learned and elegant physician, *Cleghorn*, on the pleurisy, which prevailed in Minorca, in 1745-46.

Without discussing, at this time, the propriety of its name, we may only observe that it bore no small resemblance to the yellow fever: as an inflammatory disease, it obviously required the aid of venæsection. But although this remedy was two or three times repeated in a variety of instances, yet almost every case terminated in a fatal manner. * “The cessation of symptoms, which generally happened about the third day, made me imagine the danger was over; so that before the patients were bled above twice or three times, the exacerbation came on upon the fourth or fifth days, and defeated all attempts by bleeding, blistering, or otherwise to relieve them.”

“These unforeseen events,” he continues, “startled me greatly, and led me again to review the whole progress of the disease, its symptoms, and issue.” From the observations of some authors, who exclaimed vehemently against reposing great confidence in the remedy of blood-letting, *Cleghorn* was induced to use the lancet with more caution, and to rely principally on other means of cure. “But this management proved less successful than the former; and I was convinced in a short time, that instead of too much, too little blood had been taken away in the beginning.”

“I then began to bleed more plentifully, and repeated it so as to take away thirty or forty ounces within the three first days of the distemper; and endeavoured by bathing the legs and blistering of them on the third day, to prevent the fatal symptoms from coming on about the fourth or fifth; giving nitre at the same time liberally, and camphire in small doses, to promote the thinner secretions. This method succeeded well in several cases; expectoration and urine being thereby increased: but if they were not increased, the commotions, which arose on the fourth, fifth or sixth day, made it always necessary to have recourse to bleeding again, and more blisters, in order to relieve the oppression of the head and breast; and though for the most part the patients did escape, yet they re-

* *Cleghorn*, page 256, &c.

covered with difficulty, and continued coughing, spitting and sweating in the nights, for several weeks."

"At last, about the middle of March, when the disease raged with the utmost fury, having found there was an absolute necessity for bleeding largely without delay in order to preserve life, I began to put in practice the following method of cure, which seldom or never failed, not only in young robust people, but even in those of a more advanced age, provided I saw the sick before the end of the third day."

"If I was called, for example, in the morning, the patient was immediately laid in a horizontal position, and bled at the arm, until his pains *abated*, or he *began to faint*; neither of which commonly happened, before sixteen, twenty or twenty-four ounces were taken away. If the symptoms continued, I ordered about the same quantity to be taken from the other arm in the afternoon, without regarding the urine, expectoration, or appearance of the blood. Next morning, though there might be a great alteration for the better, yet if there was the least room to suspect that any obstruction remained in the head or breast, the bleeding was repeated: and by carefully weighing the blood, I found, that between forty-eight and fifty-four ounces were frequently taken away during the first four-and-twenty hours of my attendance. This sudden copious evacuation, commonly procured a cessation of all violent symptoms, and afforded an opportunity to give an antiphlogistic purge the next day. But if the symptoms did not cease; or if the pains and difficulty of breathing returned the day after the purge had been given; or if there was reason to suspect from the head-ach, giddiness, tingling of the ears, and disturbed rest, that the brain was in danger of being affected, I had again immediate recourse to bleeding, taking away at different times to the amount of twelve, eighteen, or twenty-four ounces, in the space of a day, either by the lancet or cupping glasses, or both, as occasion required; by which means the impending storm was happily averted; and as soon as the commotions were quelled, the purgative was repeated every other day for

three times, unless some of the critical evacuations appeared with such visible good effects, as rendered it unnecessary."

By these means, the disease was successfully removed in a very short time, "and with as much certainty as any distemper whatever."

The preceding lengthy quotation, while it reminds you of the other circumstances noticed by Cleghorn, will point out its striking application to the yellow fever; indeed, if he had been writing on the latter disease itself, he would not have expressed himself in words considerably different.

In further testimony of the nugatory effects of sparing venæsection, and of the utility of a more generous use of this remedy in the yellow fever, I add,—that not one patient, who was bled four or more times, died, while several, who lost blood one, two, and even three times, sunk into the grave. If excessive loss of blood had been the cause of death, or of pernicious effects upon the body, is it not rational to infer, that the certainty of death, or its noxious consequences, would have been in proportion to the frequency of venæsection or quantity of blood lost? But, as the contrary is the result of facts, does it not erect a barrier insuperable to the enemies and calumniators of so important a remedy?

In further testimony also, let it be remembered, that hemorrhages would occur from the very violence, with which the vessels continued to act, even after four copious bleedings had been performed.

Before we dismiss this subject, it may not be unnecessary to remark, that the beneficial consequences of blood-letting first established its reputation in this town, and quickly rendered it as general, as it was obviously useful. Every physician, who was engaged in combating the yellow fever, was soon convinced of its absolute necessity, and adopted it in a greater or less extent. Happily for humanity, they, who objected to the remedy, had very few opportunities of pursuing a practice different from that which was the object of their fears and prejudices.

There are some other circumstances of importance in the cure of the yellow fever, to the consideration of which, I shall now proceed.

When the system was reduced by purging and bleeding, so far as prudence would direct the repetition of these remedies, and when the action of the vessels was still affected with some degree of febrile irregularity, *blisters* were applied with advantage to various parts of the body, particularly to the head and wrists. In many slight cases, they were made use of in the first stage of the disease. But I am inclined to believe, that the patients would have recovered sooner without them. In some more violent instances, in which purging and bleeding had been in some measure employed, blisters also were applied, but from their effects, I thought them either useless or injurious. I was however soon taught by closer observation, that it was not the fault of the remedy, but of the injudicious *time* of their application. They were prescribed too early in the disease. The inflammatory action of the system had not yet been sufficiently reduced, when the blister was applied in expectation of removing some troublesome symptom, which was afterwards subdued only by the assistance of the lancet—such as the obstinate vomiting, which attended the fever in many cases. If this urgent symptom continued even after the reduction of the system, then it might be frequently appeased by a blister placed over the region of the stomach.—*Hillary* has treated with great propriety on the indiscriminate and injudicious use of blisters. By an untimely recourse to them, their good effects are too frequently lost, or converted into consequences of an opposite tendency: for if we look around us, we must observe that blisters seem to be the refuge of ignorance, when symptoms are obscure and perplexing; or from the numbers with which the unfortunate patient is tormented, we might conclude them to be the only passport to another world.

When, towards the close of the disease, a burning pain was seated in the stomach, a liniment of laudanum and sweet

oil sometimes proved serviceable : but when it was more obstinate, equal parts of molasses, milk and castor oil, taken frequently in small doses, effected its removal.

The troublesome vomiting, which occurred on the third, fourth, or fifth day of the fever, was frequently appeased by the same means. A large draught of new milk—sometimes equal to a pint, assisted very much in checking the black vomit in one instance, in which it was tried. But the remedy, on which most reliance could be reposed, was emollient glisters, occasionally administered.

Glisters were always productive of good effects, after the necessary exhibition of the mercurial purges. They prevented the occurrence of vomiting, and checked it when existing. To the great quantity of diluting drinks, and incessant use of enemata, the success occasionally attending the practice of the French, must be properly attributed. One of the most distressing circumstances encountered by the physician, was the inability of having recourse to a remedy of such great efficacy in this disease, from the want of nurses.

I have sometimes checked the return of the last harassing vomiting, by small doses of calomel, very frequently exhibited.

The *hiccup* occurring towards the close of the disease, was almost universally the præcursor of death. The external application of flannel, steeped in cold spirit or brandy, to the stomach, sometimes mitigated its violence. In one instance, in which every means had failed, I was pleased with the good effects of a quack-remedy. Six drops of the volatile tincture of guaiacum on a lump of sugar, caused a cessation of the hiccup, as often as it was repeated. This was a respite from anxiety, and continued frequently during the course of an hour. I ascribe this effect, not to any peculiar virtue in the guaiacum, but to the volatile spirit in which it was dissolved; for as the remedy lost this property, it lost its efficacy. I have mentioned this instance, though a solitary one; for I had not another opportunity of trying its effects.

The excessive flatulency of the stomach, even after the reduction of the system, was frequently a distressing symptom.

I found the occasional use of the tincture of assafœtida, productive of good effects; but keeping the bowels freely open by means of glisters, generally mitigated this affection.

I formerly mentioned the suppression of urine sometimes accompanying the disease. But as I never knew of this occurrence early enough to oppose it with any remedy, I can recommend no particular mode for its removal. *Sydenham* mentions the same symptom in the highly inflammatory small pox, and relates the means he employed for its cure.* It will be unnecessary to repeat it here, since it must immediately occur to your own memory.

After the reduction of the system by the evacuating plan, an interval succeeded, in which medicine was no longer required. The great physician, whose name I have just repeated, somewhere observes, that with respect to the cure of fevers, when no manifest indication pointed out to him, what was to be done, he consulted the safety of his patient, most effectually, by doing nothing at all; for while he carefully attended to the disease, in order to cure it in the best and safest manner, the fever either went off gradually of itself, or came to such a state, as shewed what medicines were to be used to remove it. —This was not unfrequently the case in the yellow fever. To use stimulating or tonic medicines, was dangerous. The cure, therefore, was submitted to something a little nutritious—as weak broth in small quantities; and the symptoms soon indicated, whether stimulating soups, oysters, chocolate, mush and milk, &c. might be admitted. In this stage the cure was almost totally relinquished to such means, and to the attentions of the nurse.

Cool air was as requisite in the disease as purging or venæsection. I always ordered the room of the patient to be kept well ventilated, by opening the windows, removing the bed curtains, and placing the bed, when practicable, in the middle of the chamber. The good effects of the cool air, were well

* Vol. I, page 197—Wallis's edition.

demonstrated by the influence a confined room exerted over the sick. When the air was confined and hot, the fever increased, the patient was incessantly restless, and oppressed with a difficulty of respiration. The admission of cool air soon removed these disagreeable symptoms, and evidently moderated the violent action in the pulse. The air was required to be *fresh* as well as *cool*, not only upon account of the sick themselves, but also of those, who were constantly around them. We have already remarked, how greatly the contagion stimulated the body, even when it did not excite actual fever; we have observed also, what preternatural vigor it gave the pulse, even after necessary evacuations. By dispelling, therefore, the matter of the contagion as quickly as it flowed from the sick; or by diluting it so much as to render it inert, by the free circulation of fresh air, the patients were freed from one powerful stimulus, and their attendants rescued from the danger of its action: yet we will hereafter learn, that this, and every other means too frequently failed in preserving the healthy nurse, or interested friend, from suffering in their offices of duty or humanity.

The application of *cold water*, either alone or mixed with vinegar, to the head, on napkins, moderated its burning heat, and afforded the most grateful relief to the patient. It greatly mitigated the confusion of the head. Washing the face, hands, and feet, with cold water, always proved equally serviceable. While it refreshed the patient, it sometimes totally removed the remains of a severe head-ach. I experienced this circumstance also in my own case, when a large dose of calomel had proved insufficient to remove the pain.

I had frequently noticed in myself, the fact you have mentioned, respecting the diminished frequency of pulse in one of your pupils, by bathing his feet in cold water. I was therefore prepared, as well from this, as from the obvious advantages of bathing the face and head, to have recourse to it in moderating the action of the sanguiferous system: nor was I disappointed in my expectations, in any instance.

The *drinks* also, used by the sick, were either cool or cold.* Mild herb teas, lemonade and jelly, tamarind, apple or very weak chicken water, toast or milk and water, in the early stage of the disease, were used indifferently, according to the wishes of the patient. Water alone was frequently desired, but could be seldom granted. A table-spoonful was sometimes given, but this drink was very apt to excite vomiting, especially in the advanced period of the fever. In some instances, drinks acidulated with the *vegetable* acids, proved most agreeable. The elixir of vitriol was always nauseous, and frequently occasioned vomiting. Weak coffee and tea, were always pleasant, and used with safety in any stage of the disease.

I have noticed in a former letter, the complete absence of appetite in the yellow fever; nor could the patient ever be pronounced to be out of danger, however flattering his symptoms might appear, until a return of appetite for food announced a certainty of his recovery. Broths of various kinds, and chocolate, proportioned to the excitable state of the system, were now permitted to be taken. A small quantity, frequently repeated, was found to be most proper; and on many occasions, it became the only method of preserving the patient from being injured by an unlimited obedience to his appetite. As strength returned, animal food was admitted, till former modes of taking sustenance were gradually adopted.

The convalescence from the fever was generally rapid, if evacuations had been freely pursued. The yellow colour of the skin, if it had previously appeared, soon departed; and fresh vigor and health seemed to have been acquired from the doubtful conflict. Gentle exercise, pure air, and above all, agreeable society, hastened the return of health.

I will now, Sir, proceed to make a few brief observations on some other remedies, sometimes prescribed in the yellow fever.

Bark, so far from proving a valuable medicine in this disease, may be esteemed a poison of more or less rapidity of action. In every form, it proved injurious, by exciting vomiting, nau-

* See Cleghorn, page 174.

sea, and oppressive anxiety, and by increasing the violence of inflammatory action. In a weak infusion, its effects were nearly as mischievous, as in powder. Two or three doses, very injudiciously taken, in the first short insidious remission of one case, so aggravated the disease, that no means could avert the occurrence of death. In those instances, which wore the garb of a complete intermittent, its effects were equally dangerous or useless. In some tedious intermittents, which followed an attack of the disease, *if the bark was retained* by the stomach, it appeared to retard, rather than to accelerate their cure. It could be no longer said of this valuable medicine,—

“ *Hi motus et hæc certamina tanta*

“ *Pulveris exigui jactu compressa quiescunt.*”

Baglivi's observation was far more applicable,---“ *si chinam dederis* (ut fataliter plurimi faciunt) ventre adhuc humoribus onusto, tria *expectato*, aut inflammationem, aut lentam ac diuturnam febrem, aut *mortem.*”

Opium, when given in very large doses, sometimes checked for a time a troublesome vomiting. But this dangerous symptom soon returned, with renovated violence. Moreover it created a most obstinate costiveness, which exasperated every other symptom; and in one case, in which two or three large doses had been given, a profuse hemorrhage from the bowels followed the administration of glisters.

Laudanum discovered its pernicious powers more speedily than opium: by acting perhaps more instantaneously and generally, over the stomach, it not only excited and increased the vomiting if already present, but by increasing the stimuli previously existing, induced excessive indirect debility and death. I regret the loss of a patient, whose disease had been so far subdued as to have removed him evidently out of the critical situation he had been in; without my knowledge he took a dose of laudanum in the night, to ensure sleep---but in a few hours he was lulled in the sleep of death. Unlike the usual autum-

nal remittent, a dose of laudanum on the third evening, never produced a healthy crisis in the yellow fever. *Wade* has justly decided laudanum to be "mischievous in almost every instance;" and *Moseley* has with equal propriety termed it "a fatal medicine" in the yellow fever.

Musk was tried but once, in an advanced case, in the hope of checking a harassing hiccup. The second pill, consisting of three grains, excited such violent vomiting and increase of hiccup, as nearly destroyed the life it was intended to preserve.

Wine was universally nauseous even in the smallest quantity, and in every form, in which it could be taken. Its effects resembled, on a smaller scale, those of laudanum. When swallowed in the fever, if it did not occasion vomiting, it caused a burning heat in the stomach, or delirium. I ascribe a general eruption of large red blotches over the body, in a particular instance, to the inflammatory action of the sanguiferous system, greatly increased by the free use of wine and water. I am not amazed therefore, at the assertion of *Shenkius*, that wine destroyed all, who took it in the Hungarian fever; or of *Wade*, who declares it "ill adapted to the fevers of Bengal." Such was the uniformity of the disease, that to convalescents themselves, wine still proved injurious or disagreeable.

A small quantity of *ether* was used on one occasion, towards the close of the case, but with no good effect in checking the vomiting or the approach of death.

The *cold* or *warm bath*, I never used. One patient informed me, that he had found the pains of his legs relieved by bathing his feet in warm water. Purging and bleeding had been previously used, and this partial bath was tried on the third evening of the disease. In no other instance, did I find it useful in mitigating any symptom, or in relaxing the skin.

Every person of common observation, must have remarked the departure of the yellow fever from a usual autumnal remittent, with respect to its influence over the skin. It did not tend to a crisis by *sweat* on the third day; and at any period of the disease, it was a mischievous mode of practice to

exhibit the usual train of *fudorific* medicines; they failed to open the skin, and rarely failed of doing harm. In a few instances, which occurred after the approach of cool weather, I thought that I found advantage in preserving the sweat, succeeding the exhibition of the purge or venæsection, by means of small doses of spt. mindereri occasionally administered. But at this time, sweat was more easily excited, than during the prevalence of great heat. *Dover's* powder produced worse effects from the nausea and vomiting attending its use, than good from its fudorific properties. I was soon obliged to desist from its use.

The use of *emetics* in the yellow fever, deserves animadversion. They were admissible in every moderate case; they were dangerous in every violent one. *Ipecacuanha* only could be given with safety; I know not, whether emetic tartar ever did good. When the disease commenced with no great violence, the gall-bladder might be evacuated, and the biliary ducts emulged by a dose of *ipecacuanha*; indigested matters also might be thus thrown from the stomach. But in violent attacks, too much time was lost during the formal administration of an emetic, without any compensation of adequate importance. Emetic tartar, moreover, irritated the stomach so much, that the natural tendency of the disease to vomiting was highly increased, and in some instances this dangerous symptom was awakened by it, and never ceased but with life.

These considerations----that the preparations of antimony were dangerous, that *ipecacuanha* unproductively consumed a valuable portion of time, and that vomits were not always requisite, induced me to reject these remedies, or to seek for their effects in another manner. With this view, I gave a large dose of calomel immediately, and if vomiting was required, this medicine would produce the effect, without much nausea, exertion, or irritation of the stomach. The same dose would act also with more certainty on the bowels, and save that time, which would have otherwise been lost.

So repugnant to the state of the stomach in this disease, were the preparations of antimony, that in every instance in which I used the *vinum antimoniale*, even two or three drops of it irritated that organ, and excited a very troublesome rejection of every thing swallowed.

Before I close my letter, it may not be amiss to notice the ill effects of the combination of the evacuating plan with bark, wine, &c. A view of the yellow fever, as the synochus of Dr. Cullen, led to a pernicious mode of treatment. The patient was first bled, then bark, laudanum, &c. were administered, in order to provide against an expected state of debility. The mind was prepossessed with a notion of approaching putridity, and the appearance of inflammatory action in the commencement of the fever, was totally disregarded, or looked upon as a foe in ambush! How much to be regretted, that the *name* of a disease should ever have more potent influence over the judgement, than the *symptoms* with which it is accompanied!ADIEU!

(To be concluded in the next.)

The Angina Maligna successfully treated by Mercury and Capsicum Gargle. By GEORGE FARQUHAR, M. D. of Clarendon, Jamaica.

THE autumnal rains in Jamaica, in the year 1800, being much more abundant than ordinary, during the subsequent month of November, remittents were not only very general, but attended with unusual severity. The angina maligna, or putrid fore throat, was also at this period epidemic, and extremely fatal among children in several parts of the island. Upon visiting the hospital upon *Killit's estate, in the

* This estate, which belongs to the honorable George Mackenzie, is one of the largest and most productive in the island, yielding sometimes a crop of

parish of Clarendon, upon the 25th of November, I found three negro children, who had been admitted the preceding day with this disease. Several white sloughs surrounded by a considerable degree of redness, though with little or no swelling, appeared in the fauces. They complained of a slight soreness of the throat, not attended however with much difficulty in swallowing. The pulse was extremely quick and feeble; and there was every symptom of general debility. A vomit of tartar emetic solution had been given them the preceding evening, and during the night they had used a gargle of sage tea, and the vegetable acid, in which some alum was dissolved. I immediately ordered blisters to the fauces externally, with bark, wine, and elixir of vitriol, to be given as often as their stomachs would receive them; using some of the same, with the addition of a little tincture of myrrh, as a gargle. These applications were continued during the day and night with no good effect whatever, as the sloughs in the evening gradually assumed a dark colour, indicating the approach of incipient gangrene; and upon removing the blisters, the parts to which they had been applied, had nearly the same appearance. Two of the children died the following morning, the 26th, and the third in the course of that day. From the rapid progress of their complaints after admission to the hospital, I was led to suppose they had been for some days indisposed previous to their being presented for assistance. This their mothers acknowledged,

nearly one thousand hogheads of sugar; and the proprietor residing upon it, devotes a considerable portion of his attention to the comfort and happiness of his slaves, who amount to about seven hundred. During the time I had the medical care of this property, the following extraordinary occurrence took place. The mother of an infant, after an indisposition of some time, died, leaving her child to the direction of its grandmother, a negro woman, about the age of seventy, who being in the habit of putting her breast in its mouth to keep it quiet, in a few days was astonished, not only at a considerable increase in the size of her breasts, but at their being so full of milk, that the child was receiving nourishment from them in abundance. She continued suckling it for about a year, during which it was extremely healthy, and continued after one of the finest children upon the estate.

observing, that as they appeared to have only slight colds, they did not consider they required medicine. Directions were now however given, that the children should not only be conveyed to the hospital the moment they complained of their throats, but that the fauces of all the children upon the estate, should be examined twice a day. Three more cases of the disease were this day received into the hospital; and the treatment of the former having proved so entirely unsuccessful, I adopted the following: Four grains of calomel, with as many drops of laudanum, were given to each of the children, (two of whom were of the age of six years, and one of five,) and repeated every four hours, intermitting or continuing the laudanum, to prevent the mercury's passing off by the intestines, as might be required. A drachm of mercurial ointment at the same interval of time, was ordered to be rubbed into the fauces externally, and into the inside of the arms of each; they were also supplied liberally with wine, spices, and nourishing food. I at the same time directed the following stimulating gargle, to be used every hour:

Take of Cayenne pepper, two table-spoonfuls; common salt, one spoonful; to which let of water and vinegar, each one pint, be added, and boiled down to half the quantity.

These applications were continued during the whole of the day and night; and the subsequent morning, the 27th, I was pleased to find, by the state of the gums, that the mercurial action had commenced. Several of the sloughs had also separated, leaving little ulcers of a fine red healthy appearance. The pulse was also become much stronger: medicines continued. The 28th in the morning, a considerable degree of ptyalism having been produced, and the remainder of the sloughs having cast off, the use of the mercury was discontinued. The stimulating gargle was also laid aside, and in its stead, a weak solution of alum in water, was substituted; a dose of castor-oil being twice given at an interval of two days, to carry off the remains of the mercury. No other medicine was required, so that

in ten days they were dismissed cured. On the 27th, four more children having been admitted with the same disease, the before-mentioned treatment was adopted with the like success. Every succeeding day, two or three new cases occurred, till between forty and fifty had gone through the disease; every one of which terminated favourably, except the three first mentioned, prior to the mercurial treatment: so that this disease, which, occurring upon a plantation where there were nearly two hundred children under the age of eight years, had necessarily excited at first so much alarm, after the recovery of ten or fifteen of the cases, was considered so manageable that all apprehension subsided. Two or three children continuing to be admitted with it daily for a fortnight, I recommended the removal of all the healthy children upon the estate, to Farenough, a very high and healthy situation, about a mile distant from Killit's; and from this time, the disease gradually disappeared. It is to be observed, that many of the children who were affected with this complaint, were infants, under the age of six months; and notwithstanding, not less than a grain of calomel was given every four hours to the youngest, with the use of frictions in the same proportion, no injury nor inconvenience whatever, resulted from the mercury. In these very young children, the use of the gargle in the ordinary way being inadmissible, the blunt end of a silver probe was armed with a little lint, and being moistened with some of the gargle, was applied frequently to the sloughs, which answered every purpose. Among the number of those affected with angina maligna, only one case of an adult occurred, which was in a woman of a relaxed weakly habit, the mother of two of the affected infants, and the calomel was given to her in double the doses of that to the elder children.

From the foregoing cases, it will be easily observed, that whatever benefit may result from the use of blisters in this disease, in cold climates, in tropical countries they are attended with no benefit, if they are not prejudicial; neither is there any reliance to be placed on the bark.

As the angina maligna is not a local disease, but attended with a putrid diathesis of the system, the capsicum gargle can only be considered as an auxiliary; it will be admitted, however, it is a very powerful one. What would have been the result of the use of mercury independent of the local stimulus, is uncertain: it is unquestionably, in many complaints, a most invaluable medicine; and may be given with safety to the infant and the aged, and to persons of every description, to an extent, that, twenty years ago, would have excited the astonishment of the most experienced practitioner.

An Examination of Dr. Osburn's Opinion, of the Physical Necessity of Pain and Difficulty in Human Parturition.

Philadelphia, December 1st, 1804.

DEAR SIR,

THE substance of the following paper, was originally delivered as an Introductory Lecture; first in 1799, and afterwards in 1803. It was also regularly delivered every winter since '99, as a concluding Lecture on the Pelvis. As some of the opinions it contains have been considered of sufficient importance to be promulgated without acknowledgment, I have thought proper to alter its form, and thus assert a right, of however little value that right may be.

I am, Sir, with the highest respect,
Yours,

WILLIAM DEWEES.

DR. JOHN R. COXE.

DR. OSBURN, in the introduction to his essay on laborious parturition, has endeavoured to prove, that pain and difficulty are natural to woman in parturition. He conceives, "that in sorrow shalt thou bring forth children," was a curse pronounced by God against man, and that it was his intention it should be fulfilled and continued, as long as the world endured. That this curse was felt and perpetuated, by the erect form which he gave man; while the horizontal one of the subordinate quadruped exempted it from these evils; he also supposes, "the peculiar advantages of positions so different from each other, can no more exist in the same creature, than the strength of the draft-horse and the fleetness of the racer, can be united in the same animal; as these depend on qualities incompatible with each other, and which cannot exist together in the same subject, so those depend on circumstances of structure, or physical laws equally incompatible and inconsistent."

From this it would appear, first, that God intended that woman should bring forth with pain and difficulty; and secondly, that this intention was answered by a physical peculiarity, *that is*, an erect form. From these positions I must dissent. God in giving the erect form to man, could not mean it should serve as a balance, to the disadvantages resulting from it to the female; he intended man for the most perfect, and the most powerful animal; he gave him faculties, capacities, and appetites, different from all others; he gave him the erect form as the most dignified, and best calculated to display and improve those transcendent advantages. It would indeed be limiting the power of the DEITY, to suppose, that a mechanism so elaborate, and so perfect as that of man, was necessary to effect a curse (as Dr. O. believes it) so limited. Had this been the intention of God, why should not the male participate in its disadvantages? or in other words, why should the female alone incur the penalty? since the doctor himself admits, that, except for this, the erect form is a mark of pre-eminence, and a blessing.

Besides, the physical necessity of pain and difficulty is by no means proved, by the text he has brought forward to demonstrate it. For, "in sorrow shalt thou bring forth chil-

dren," does not necessarily imply, they shall be brought forth with pain and difficulty; for sorrow is, in no one instance in the holy writings, made synonymous with pain or difficulty; in no one instance is it made to signify corporeal sensation:—on the contrary, it is invariably used to express a certain painful state of mind. I therefore believe, it was only intended to express the anxiety every woman feels for her own safety, and for that of her infant, at the interesting moment of her becoming a mother. This state of mind is inseparable from the pregnant woman; the joyless savage on the banks of the Oroonoko, is not more exempt from it, than the enervated female of civilized society. When she reflects on what uncertain tenure life is held, that one half, or more, of the human race is doomed to certain death before they arrive at maturity; the variety of accidents, as well physical as moral, the heir of man is exposed to, she sorrows,—and "in sorrow" she brings forth.

This I conceive to be the true meaning of the text quoted by Doctor O.—for were it otherwise, and made to signify pain and difficulty, it would necessarily imply punishment; this punishment ought universally to obtain, agreeably to the intention with which it is said to have been inflicted: but this is not the case; we therefore cannot suppose it was intended as a punishment. On the contrary, it is more than probable that pain and difficulty are artificial, and are the consequences merely, of civilization and refinement. For the human constitution, when not under the influence of these causes, will, *cæteris paribus*, be found capable of meeting and overcoming without any difficulty, the ordinary changes produced by gestation and delivery. Of this, abundant proofs might be given; for the female savage, wherever found, whether under the scorching heat of an African sun, or beneath the rigorous sky of the unfriendly Labrador, brings forth her young, without the assistance of an accoucheur or midwife; but the reverse of this almost universally obtains among the females of the civilized world: these differences are most probably occasioned, by the changes produced on the human constitution, by civilization and refinement.

The mischiefs derived from the sources just mentioned, are found to consist in the disposition to, or existence of diseases, either general, or local, or both; in those which may affect the system in general, or those which may exist in the uterus or pelvis in particular; in the introduction and continuance of certain pernicious customs, habits, or modes of life, thereby inducing a preternatural degree of inability, sensibility, laxity or rigidity,—and hence the physical necessity of pain and difficulty in parturition, among the greater part of women in a state of civilization and refinement. The difference then, in the opinions of Dr. O. and myself, consists in, what he supposes natural and unavoidable, I believe artificial and in part remediable.

I will now examine the Doctor's arguments in favour of this natural physical necessity; and if their futility or inconclusiveness can clearly be shewn, I trust my point will be established, without the necessity of much positive reasoning.

Dr. O. thinks it as incompatible to unite the advantages of positions, so different as those of man and the quadruped, as it would be to unite the strength of the draft-horse, with the fleetness of the racer;—yet it is well known that many women bring forth children without pain, consequently the horizontal position of the brute is not exclusively the only one, in which a foetus may be born without it.

Dr. O. having laid down his favourite positions—namely, that pain and difficulty were intended by the Deity as concomitants on human parturition; and secondly, that these were effected, by the erect form of man; goes on to consider how this is brought about; “to understand,” says he, “how the erect position of body necessarily operates, in making natural labour in woman more painful, tedious, and difficult, than in the quadruped, it is sufficient to observe, that in such a situation there is the general and powerful influence of gravitation to counteract; in a certain degree, during the whole period, but in a much greater degree, towards the conclusion of utero-gestation; for as gestation advances, the ability in the soft

parts to resist the influence of gravity, regularly decreases: and thus if not prevented, premature labour would be the inevitable consequence."

"Completely to guard against this accident, which is of the last importance to the existence of mankind, nature has taken particular pains, and attended to a variety of circumstances in the structure of the bodies, both of mother and child, which, while they effectually answer the purposes intended, unavoidably create those very obstacles which delay and impede delivery. The most natural of these circumstances it may be proper to describe."

"First then, that irregular cylindrical cavity in the skeleton, called the pelvis, through which the foetus in all animals must pass, is so placed in the human body, that its axis is very different from the axis of the trunk, and of course, not perpendicular to the horizon, nor can any thing passing through it, be within the immediate influence of gravity; at the same time, the axis of the pelvis is very remote from, if not directly opposite to, the axis both of the vagina and os externum, through which the foetus must pass."

These positions are certainly true; but what do they prove? Certainly not, that pain and difficulty are inevitable to the animal so circumstanced, in bringing forth its young; but merely, that the different axes of the trunk, pelvis and vagina, are not parallel: but this makes nothing for the point, since it by no means follows, that women, to be exempt from pain and difficulty in labour, must have these axes correspond. This indeed would be a disadvantage agreeably to Dr. O.'s own confession; for he alleges, that were the influence of gravitation not taken off, premature labour would be the consequence; but this end is effectually answered, by giving this variety to the axes of the parts concerned in parturition; and this, without necessarily being the cause of pain and difficulty, since we see women bring children without them; for the most perfect correspondence takes place successively, between the different axes as the labour advances.

“ Secondly, upon the same principle,” says Dr. O. “ and with the same view, nature has been obliged to vary, nicely and minutely, both the form and the capacity of the pelvis, making it wide in one part, narrow in another, concave and deep behind, straight and shallow before, and with sides that converge to a considerable degree.”

The arrangement here spoken of, though correct, I do not by any means conceive was intended for the purposes Dr. O. supposes, (namely, pain and difficulty) any more than the one just spoken of, since the same argument must necessarily hold good in both cases, viz. women are delivered without pain, who possess all this variety in their pelves.

“ Thirdly, the upper and lower apertures of the pelvis do not at all correspond in their shape, and have directly opposite diameters. The superior aperture or brim of the pelvis, where the child enters, is oviform, with the long diameter extending from side to side. The inferior aperture, through which the child is to pass out, is so irregular as not to admit of a comparison, or illustration, from any known form, but is certainly shorter from one side to the other, than from the fore to the hind part; and that, in nearly the same proportion as it was longer above: thus the two apertures have directly opposite diameters.”

The construction of the pelvis spoken of, does not, necessarily, produce pain and difficulty in parturition, unless from a wrong position of the foetus, since the diameters of the head, are made to correspond with those of the pelvis, and this arrangement is essential, for the reasons just mentioned; since by it, two great objects are accomplished; first, the woman is not subjected to abortions when the uterus is impregnated, nor to its prolapsus, when empty; secondly, a resting-place is furnished to the foetus by the hard and soft parts of the mother, whereby she is enabled to carry her burden to the most remote period of gestation, without any very great inconvenience to herself, or danger to the child.

“ Fourthly, pursuing the same intention, nature has made the volume of the child's head such, compared with the cavity of

the pelvis, that it cannot enter by its own weight, but requires the powerful and repeated contractions of the uterus and abdominal muscles, and even then, the head must be of a particular form, and in a particular direction; that in the passage, both these necessarily undergo a material change from compression, that the shape of the head may be, all through, adapted to the pelvis; and thus it must come out with an altered form, and in a different direction."

This argument in favour of the physical necessity of pain, &c. can have but little weight, since it amounts to no more than what we have already granted, and are again willing to concede—that, for the head to pass through the pelvis, it must have its large and small diameters correspond with those of the pelvis. This most frequently obtains, and with such uniformity, that, the head might very frequently be still larger, without augmenting or producing difficulty. We cannot here withhold our admiration at the wonderful resources and simplicity of nature in this construction; that, while it affords a security from certain accidents to the animal to be born, it at the same time gives a freedom from evils to the mother, that would be irremediable; and all this is effected, unfortunately for the Doctor's argument, without necessarily producing pain and difficulty.

The general position of the child's head in utero, is such, that its longest diameter traverses the pelvis rather diagonally; by this arrangement, portions of the greatest diameter of the head, are constantly presented to portions of the smallest diameter of the superior strait, which prevents the head from engaging in it by its gravity, and consequently, exempts the mother from some serious inconveniences by this provision.

In brutes there is no necessity for this arrangement; as their pelves are nearly, or quite horizontal, the axes of their uteri are not exactly parallel with the axes of the pelvis and vagina; since, the weight of the contents of their uteri carries them below their plane, and consequently, requires as much assistance from the contractions of their wombs to adapt the different axes, as it does in the human subject: but this contraction or effort in the brute is not attended with pain; we cannot therefore conclude

it necessarily productive of it in women. Besides, nearly similar changes must take place in the birth of the inferior animals, as in the human female; since it cannot be supposed that a similar conformation was given them, for a different purpose; for instance, in all the pelves of brutes we examine, we find, an inflexion of the lumbar column; a difference in the diameters of the first strait; a corresponding difference in the second; a greater or lesser excavation of the sacrum, and a looking in of the coccyx. The heads of animals also, bear a very strong general analogy to the human; such as a difference in diameters, to answer the different diameters of the pelvis; sutures and fontanelles, in order that the head may conform to the changes, necessarily imposed on it by the contractions of the uterus in its passage through the pelvis. In them also, as in the human subject, do difficulties occur, from a wrong situation of the head, or from an unfortunate presentation of some other part; in them also do the same consequences result when this happens,—pain and difficulty.

“To add to the more effectual support of the gravid uterus during gestation, all the soft parts concerned in labour, are of a firm and rigid texture, dilating at all times with considerable difficulty, to such a degree as to permit the passage of the child through them without laceration, or other injury. It is obvious that these circumstances must render the act of child-bearing, slow, difficult, and painful.”

These last assertions of Dr. O. cannot be admitted, since every day's experience contradicts them. It is a well known fact to every practitioner, that in very many instances, the mouth of the uterus and other soft parts concerned in parturition, yield as kindly with the first child as they do with subsequent ones; and that sometimes, there is with the first an unwillingness in these parts to yield, that never manifests itself again: besides, these changes take place sometimes so rapidly, and so silently, that the woman is often surprised alone, by the birth of her child. Pain is certainly not necessary to relaxation, nor does relaxation produce pain. Pain may continue violently and for a long time without

producing the smallest relaxation ; indeed, it seems unfavourable to it, since it implies more or less disease, or at least, a greater or lesser departure from the ordinary process of nature. Besides, did we admit, that the rigidity of the soft parts and their unwillingness to yield, must necessarily make "the act of child-bearing, slow, difficult, and painful," with women in a certain state of civilization and refinement, it does not follow as a consequence, that this must universally obtain !

Again, it may safely be asserted, that pain and difficulty in those who may experience them, does not in general depend on rigidity, which Dr. O. considers as a law of nature, and one that firmly establishes his theory ; for we find them frequently taking place after the most perfect relaxation ; consequently, they cannot be considered as essential to this effect, since the end is answered ; and, moreover, relaxation only takes place in the absence of pain, for pain is produced by contraction.

No, it is to the changes already hinted at, as produced by civilization and refinement, that we are, for the most part, to attribute the pain and difficulty of human parturition, and not to the peculiar structure of the body. These evils rarely occur among savages, or among those who have not been injured by disease, or perverted by custom. So little trouble has the squaw of this country in her labour, that it never interrupts any project or enterprise she or her husband may have in view ; if taken in labour when marching with him, she retires behind a bush, delivers herself, and quickly again rejoins him.

Mr. Swinburne tells us* that the women of Calabria bring forth their offspring almost without a groan ; and that it has become proverbial, "that a Calabrian maid-servant prefers the labour of child-birth to that of a wash."† M. Brydone‡ also informs us, that among the Sicilian women, labour is attended with so little pain or danger, that they appear perfectly well the day after delivery. Many more instances of the like kind

* Travels in the two Sicilies, page 287.

† Ibid.

‡ Tour through Sicily and Malta, vol. 2, letter 22.

might be mentioned from authors, which seem clearly to prove, that this operation was intended by the Deity, to be performed with ease and safety.

How different is this from what we observe among women, who have been perverted by civilization and refinement ! what miseries have not our boasted improvements inflicted ! The curse that has fallen upon us has been from luxury, instead of being the fruit of the disobedience of our first parents.

If it should be asked, why pain occurs for the most part, in labours that are so rapid as to employ but a few minutes, I would answer ;

That the uterus possesses two distinct kinds of actions ; the one, regular and constant, and always tending to diminish its capacity, when its sides are distracted, or when the distracting force is withdrawn ; it is capable of occasional and powerful augmentation, and, in a natural and unperverted state, is sufficient to effect the delivery of the child. Of this kind, is that action which reduces the uterus to its original bulk after delivery ; of this kind, is that action which effects delivery among females in a savage state, and among those of Calabria, &c. ; of this kind, is that action of the uteri of brutes which relieves them of their burden ; of this kind, is that effort which expels the child after visible life has ceased in the mother : * this kind of action or contraction of the uterus, is not attended with pain. This is called the tonic contraction of the uterus. The other action of the uterus is a spasmodic one, and attended with pain. This is a distinct action from the other ; and in this instance dependent on it.

This last kind, or spasmodic contraction of the uterus, I am disposed to consider for the most part, if not altogether, artificial or accidental to women ; my reasons for thinking so are,

First. No physical or absolute necessity for pain ever has been, or ever can be demonstrated.

Secondly. Women in a state of nature, are, for the most part, exempt from it.

* Harvey, Baudelocque, &c.

Thirdly. If analogy will be allowed to be called in, I can urge, the exemption of brute animals from it, though possessing very similar conformation of pelvis, &c. to the human.

Fourthly. Many women, among those who for the most part have pain in their labours, are sometimes free from it.

Fifthly. It not being essential to delivery, as children have been born after the death of their mothers, by the tonic contraction of the uterus alone; and many women have pains in various parts of their bodies independent of the uterus; as in the jaws, head, knees, &c.

Pain is in very various proportions among women who are equally well formed; we generally find the women of the country more obnoxious to it, than those of cities; and the hard-working or laborious part of those in cities, more afflicted than those who live more luxuriously and indolently. Various reasons might be assigned for this difference; I shall however only observe, that, wherever we find that state of fibre which is termed rigid, we shall there find also, *cæteris paribus*, more pain during labour; with this state of fibre there appears to be connected, (or it may exist in this very state) a greater disposition in the system in general, or in the uterus in particular, to take on what is termed, inflammatory action;—and hence, the utility of blood-letting, and that sometimes to a great extent, in those labours that are attended with rigid *os uteri*, or unyielding external parts; I have frequently seen this remedy act like a charm; it not only hastens the labour, by diminishing the resistance of the soft parts, but also, by the same means, abates pain, as there is now a lesser obstacle to overcome.

From what has been said, it would appear, that the general effects of society and refinement, have produced certain changes on the human female constitution; and that these changes have produced their consequences; which consequences have given rise and continuance, to pain and difficulty in human parturition.

I will now attend to Dr. O. when he considers “the peculiarities of the quadruped, and their operation in labour.”

“ By the horizontal position of the quadruped, the parietes of the abdomen support the gravid uterus during gestation, in whatever situation the animal may be ; the parts concerned in labour cannot, therefore, at any time, be exposed to the general influence of gravity ; on which account, nature was not required to observe such strict laws, or be attentive to such minute deviations, respecting either the position, or capacity of the pelvis, the volume, or form of the head of the fœtus, the situation or structure of the soft parts. Therefore, the same, or very nearly the same axis is given the trunk, the pelvis, the vagina, and the os externum ; nature has likewise made the head proportionably small, compared with the capacity of the pelvis ; so that it may readily pass through in any direction ; and the soft parts, having nothing to support, are of a loose texture, easily yielding to the pressure of the membranes, or fœtus, and of course affording little resistance, and no impediment to delivery.”

From the horizontal position of the quadruped pelvis, nearly the same consequences result, as in the human female ; for the fœtus in them, neither will, nor can be made to engage in the pelvis, until forced by the contractions of the uterus ; this is precisely the case in women : and however widely the axis of the uterus, and that of the superior strait may differ before labour, we find a perfect correspondence immediately after, and this is all that is required.

Dr. O. supposes a great degree of rigidity necessary in the uterus, in order that it may support the fœtus ; and that this is one of the causes of difficulty in human parturition ; but it can be readily demonstrated it is not necessary, even by his own words.

The head, he says, cannot engage by its gravity, since, the axis of the uterus and the superior strait are not the same ; if this be true, how can the head be exactly over the opening of the pelvis ; and if it be not exactly over the opening of the pelvis, it must impinge on some portion of its margin ; and if it does impinge on a portion of the margin of the pelvis, what great weight can the uterus have to support ? Thus then we see, rigidity is not absolutely necessary, consequently, must not be considered as a cause, naturally productive of pain and difficulty.

Dr. O. admits, however, that the axes of the uterus, pelvis, and vagina, are not exactly the same in the quadruped: to what is the power given to make them correspond? It can only be to the uterus: and has not the human female the same agent? and does it not perform its duties equally well?

“The head of the brute foetus,” he says, “is proportionably small, compared with the capacity of the pelvis, so that it may readily pass through in any direction;”—but upon a strict examination, it will be found to bear the same relation to the different diameters of the pelvis, as the head of the human foetus does to its pelvis; and in the latter, it is a well-known fact to accoucheurs, that, it might in general be larger without producing an increase of difficulty; but the Doctor certainly labours under an error, when he says, that the head of the quadruped foetus may easily pass in any direction; since, it is neither consonant with the structure of the parts, nor the mechanism of labour, as daily experience proves.

The soft parts in the brute, he says, “are of a loose texture, easily yielding to the first pressure of the membranes, or foetus, and of course affording little resistance and no impediment to delivery.” But the Doctor admits they dilate; so they do in the human subject, and in a state of nature with as much facility; and this is all that is necessary.

Dr. O. asserts, that, it is from this peculiar structure of the soft parts of brute animals, that a laceration of the perinæum never happens; and also, that it is owing to the rigid structure of the human subject, that it frequently happens with them.

These assertions of Dr. O. like some others already noticed, are rather unqualified, since it has happened with the cow and the mare, as I myself have witnessed, either from the extraordinary size of the foetus, or its bad situation. That it is not an unfrequent accident in human parturition is admitted; but it is the effect, in general, of ignorance or inattention, agreeably to the Doctor's own confession. But if it be admitted that this takes place in human parturition, even under the most cautious ma-

nagement, (for Dr. Denman has acknowledged it having happened under his care) what does it prove? most assuredly not what Dr. O. wishes; on the contrary, it is another support to the position, that the changes produced on the female constitution by civilization and refinement, are the causes of pain and difficulty in human parturition; and that this artificial state of the perinæum, whereby it is endangered from the passage of the child, is a corroboration; for who is there to guard the perinæum of the American squaw, or the wandering Arab? yet we hear not of this accident among them.

After following Dr. O. through his principal arguments, it will be proper to advert for a moment, to his conclusion.

“By this sketch of human and comparative parturition, it is evident, why this operation under the most favourable circumstances, or natural labour, must in women be attended with much more pain, difficulty, and delay, than in any other creature.”

Here we find the Doctor again asserting more than he has proved; for if his words, “under the most favourable circumstances,” mean any thing, they must imply—that human parturition must under all or any circumstances, be attended with pain, difficulty, and delay; this, I trust, has already been shewn, is not the case.

The Doctor then adds, “it remains now to be explained, why laborious parturition never did, or can occur in the quadruped.”

“It is well known that the great and genuine cause of difficult and laborious births, is the deformity of the pelvis, or the disproportion of its cavity to the volume of the child’s head, and that this deformity is caused by a disease peculiar to the human subject, called in infancy rachitis, and in the adult state mollities ossium.” Dr. O. might have gone farther and have said, that this disease is not only peculiar to the human subject, but to them only under particular circumstances; he has mistaken a consequence for a cause, and by doing this, he has deserted his original positions; namely, that the erect form of the human

female, and her peculiar form of pelvis, (independent of disease, and the inflicted curse) were the physical causes of pain and difficulty in her labours. In attributing pain and difficulty to rickets, he appears to forget there are other causes for them; and from its being a disease peculiar to man, draws a most unwarrantable conclusion, "that laborious parturition never did nor can occur in the quadruped."

Dr. O.'s argument then stands fairly thus; the cause of pain and difficulty in human parturition, is rickets; rickets is peculiar to the human subject, therefore, no other animal can have a painful or laborious labour:—or thus, no animal that is not subject to rickets can have a laborious or painful labour; no quadruped is subject to the rickets, therefore no quadruped can have a painful or laborious labour.

The absurdity of these premises and conclusions are too glaring to need further refutation. I grant, and I believe it universally obtains, that the quadruped is not subject to the disease just spoken of, but I will by no means agree that this exempts them from painful and laborious births; they are by it only freed from this cause of them, for I have seen, the cow particularly, in extreme agony many hours, from a bad position of the head, notwithstanding Dr. O.'s bold assertion, "that it is proportionably small, and may pass in any direction."

From what has been said, I trust, it has been made appear, that pain and difficulty are not physically necessary.

Account of a singular Case of Hemorrhage, extracted from a Letter of the late DR. E. H. SMITH of New-York, to BENJAMIN RUSH, M. D. dated New-York, April 9, 1794.

JAMES HAWLEY, was born October 8, 1758, (O. S.) well, and a perfect child. His mother, when a young woman, had been troubled with chlorosis; and had, during her

pregnancy with this child, the disorders usually attendant on a pregnant state, very severe: but both the one, and the other, were relieved by the use of a peculiar clay-stone, common in the parish where she was born; and which she was fond of eating. ---Three weeks before the infant was one year old, he fell, and ruptured the *frænum* of the upper lip. The lip was filleted down, and to prevent the child's disturbing it, his hands were bound. The infant swallowed the blood, and the stools were coloured with it. The bleeding continued, without the least intermission, till the birth-day---October 8, 1759---and then stopped spontaneously.---The 4th of October, 1760, in coughing, the child burst a vessel in the nose. Cold applications did not stop the hemorrhage. Tents were retained in the nostril, and occasionally removed to let out the blood. All the stools were made black, by the blood swallowed: and the hemorrhage did not abate till the birth-day---October 8, 1760---when it ceased, as before, spontaneously.

“Several days before the child was three years old,---it is not remembered, with certainty, how many---the child trode upon a knife, and made a gash, near the little toe, about an inch in length, but *scarcely skin-deep*. This was on Sunday afternoon. The part was bound up; but bled all night. In the morning a physician was sent for, who had said that he could stop the bleeding. He attempted; but ineffectually. The neighbours came in; many things were proposed; but all tried, were of no avail. Among others, a piece of bladder was *glued* on: but it was soaked off by the blood. *Lapis infernalis* was four times applied in one day. Several other physicians were called in; but their skill was baffled. All these applications had created an ulceration half an inch deep, and two inches long, when the clay-stone was thought of. It was obtained; the child ate it powdered, and the powder was applied to the fore. The blood stopped immediately.---But this also happened on the birth-day---October 8, 1761---and whether it was effected by nature, or the clay-stone, may be a question.

Nineteen days before the boy was to be four years old, in drawing an axe out of a log, he let it fall upon his foot ; by which the little toe of the right foot, was cut through the bone ; and was only held on by a small piece of flesh. The same physician was sent for ; and recollecting the supposed efficacy of the clay-stone, the preceding year, he applied it again, but in a stupid manner ; as, instead of making a direct application, he bound it on enclosed in a linen rag.---He neglected taking off the toe, and bound it on, in hopes that there might be a reunion of parts, by the first intention. Many other applications were made ; but proved insignificant.---My father, who had just finished his studies, was sent for ; but came too late. For several days the discharge had been only of a thin water ; the blood seeming to be entirely exhausted. The child, who was my *father's* nephew, died the day *he* arrived ; on the 3d of October, 1762,---five days before his anxiously-expected birthday. These circumstances were related to me by my aunt, who is still living.

Singular Cases of Hemorrhagy.

DR. OTTO, who has given a very interesting account, in the 6th volume of the New-York Medical Repository, of “an hemorrhagic disposition existing in certain families,” has furnished me with the following additional information of the family of A. B. which he procured through the late Mr. BORDLEY of this city. *Editor.*

Easton, May 27, 1803.

DEAR SIR,

YOUR letter was duly received, but at the time, I was confined to my bed by a very tedious and painful indisposi-

tion, which I offer as an apology for any apparent neglect.--- I was not myself acquainted with the history of the cases you mention : but, with a view of aiding your benevolent intentions, I consulted Dr Allen, the oldest physician of this neighbourhood; Dr. Martin; and extended my inquiries to Choptank Bridge, Dorset and Queen Anne's county, but in vain, until our present court, when I met Mr. Walker Binny, a juryman, who is perhaps better acquainted with the circumstances than any other person in this country.---Mr. W. Binny is nearly related to Mr. Benjamin Binny, who I presume gave you the information, which was the subject of your letter : he now occupies the very farm upon which Benjamin resided :---He knows nothing of the minutiae of the business, but is certain of the fact, that all the *male* children of B. Binny fell victims to fatal hemorrhagies, from the slightest causes, as the puncture of a pin, the cut of a knife, &c. &c. A daughter of his is now living, who has occasionally experienced those little disasters we are all liable to, and with the usual effects. Either three or four boys died from trifling injuries, notwithstanding the assistance of the best informed gentlemen in medicine. If I should be fortunate enough to hear any thing more particular, relative to them, I shall with great pleasure communicate it to you.

I am, dear Sir,

Your obliged and very obedient servant,

JOHN COATS.

JOHN B. BORDLEY, Esq.

P. S. Since writing the above, I have had a second interview with Mr. Binny; the result you will find in the inclosed letter. The only male who did not immediately die by loss of blood, fell a victim to the consequence,---dying of the dropsy in early life.

DEAR SIR,

June 1, 1803.

I HAVE made inquiry respecting the loss of three of the sons of Benjamin Binny, deceased.---The first that died with the

loss of blood, was occasioned by the kick of a colt over the eye-brow.---The second was lost by a blister being raised on the fore finger, from the fall of a brick, from a negro child, when they were at play.---The third was cut over the eye, by the swing of a gate, as he was passing through.---Physicians attended each of them, but to no purpose; as all their skill could not stop the blood.---A fourth was very subject to bleed at the nose, though he did not die of the same. The females were not subject to the same complaint.

With respect,

Your obedient servant,

CHARLES W. BINNY.

DR. JOHN COATS.

THE following cases, extracted from the Philosophical Transactions of Great Britain, are introduced here; as they shew that similar instances have occurred at various periods, though they have not perhaps been always noticed. *Editor.*

“ *A strange Kind of Bleeding in a little Child.* By M. SAM. DU GARD.

“ A child (about a quarter of a year old) at Little-hall, in Shropshire, about Candlemas, 167 $\frac{1}{4}$ was taken with a bleeding at the nose and ears, and behind the hinder part of the head, where there was nothing at all of any sore: this lasted for three days; at the end of which the nose and ears ceased bleeding: but still blood came, as it were sweat, from the head. Three days before the death of the child, (which was the sixth day since she began to bleed) the blood came more violently from her head, and streamed out to some distance from it: nor did she bleed only there, but upon her shoulders and at the waist, in such quantities, that the linen next her might be wrung, it was so wet; and every day required clean

linen. She for three days bled also at the toes, at the bend of her arms, at the joints of her fingers of each hand, and at the fingers ends; and in such measure, that in one quarter of an hour, the mother hath caught from the droppings of the fingers, almost so much as the hollow of her hand would hold. All the time of this bleeding, the child never cried vehemently, but only groaned; though about three weeks before, it had such a violent fit of crying, as the mother said, she never heard. After the child was dead, there appeared in those places where the blood came, little holes like the prickings of a needle.

“The mother said, “that the blood was not thin, like water, but of that thickness as blood usually is; and that she and others believed there was little or no blood left in the body of the child.”

[*Lowthorp's Abridgement, vol. 3. page 247.*]

IN the same place we have an account of the periodical evacuation of blood, at the end of the fore finger in an inn-keeper, which continued twelve years, he seldom having a respite of two months, and the fits never returning oftener than in three weeks. He rarely bled less than a pottle (half a gallon) at a time; any attempt to staunch the blood, raised most exquisite tortures in the arm. No remedies proved effectual. It generally continued for twenty-four hours, till he fainted away, when it stopped of itself, and his pains left him. Towards his latter end, he bled but little, and that too but like diluted water. It carried him off. [*Ibid. Related by Mr. Ash.*]

Another case by Dr. Clopt. Havers, is given, of a woman who had an eruption of blood out of the glandula lachrymalis of one eye, without any external injury. She bled three pounds within the space of thirty hours. About a week after, the same sluice was opened again, and she bled till she died. *Ibid.*

*An Account of the successful Treatment of an obstinate and dangerous Case of Menorrhagia and Fluor albus.**Bent-Creek, Virginia, December 10, 1804.*

DEAR SIR,

PERMIT me to relate a case of menorrhagy, and fluor albus, successfully treated by bleeding, mercury, and sugar of lead; and to request your opinion of the propriety of the treatment.

On April 27, 1804, I was called to visit a lady, aged twenty-four, in the hemorrhagic, (or menorrhagic) state of fever. She had been married about five years, and had not enjoyed an exemption from periodical attacks of the menorrhagy, and an uninterrupted discharge of the whites, for more than four years. The precursors were pain in the head and back, swelling of the external organs of generation, and an itching and soreness in the vagina. The hemorrhagy was so copious, that it threatened extinction of life. Her husband informed me, that she had taken the cold-bath, bark, elixir of vitriol, columbo, and all the tonics of the materia medica, agreeably to Dr. Cullen, without producing any sensible relief. To me it appeared, that a preternatural or morbid excitement in the blood-vessels of the uterus, constituted the proximate cause of this disease; and that this was a case of hemorrhagy of strong morbid action.---I commenced the cure by bleeding twice a week, for four weeks, and then excited a gentle salivation, and continued it for two weeks. For the swelling of the organs of generation, and itching and soreness in the vagina, I directed a weak solution of sugar of lead to be injected five times a day. By bleeding, I wished to subdue a part of the inflammatory diathesis, before I gave the mercury; and by the salivation, I wished to transfer the morbid action, from the uterus to the salivary glands. I

was led to this treatment, from observing the good effects of blood-letting and mercury, in the dysentery and diarrhœa.---My patient enjoys good health. Her husband informed me, a few weeks past, that she looked better than he ever saw her, and that she had grown *qualmish* of late, which he believed to be the effect of a *thriving* situation. I directed him to have her bled once or twice a month. I was led to prescribe bleeding, from neglecting it in a lady, aged forty-seven, on whom I had stopped the uterine hemorrhagy for four months. She died of the apoplectic state of fever.

I am, dear Sir,

Yours,

ROBERT BURTON.

DR. BENJAMIN RUSH.

Account of the Efficacy of the Juice of the Poke-berry in the External Hemorrhoids.

Havre-de-Grace, December 24, 1804.

DEAR SIR,

AN old gentleman of this neighbourhood, some time ago, informed me of a very speedy cure he had made on himself, of the external hemorrhoidal swellings, by the juice of the common poke-berries; he said he had been induced to try it, from the great success with which he had seen it applied to cancerous warts and ulcers. In his own case, he procured the berries when perfectly ripe, and exposed the expressed juice to the sun, until it had acquired the consistence of jelly; this he applied to the parts affected, which caused him such severe pain, that he almost determined to abandon the experiment;

but as this smarting and heat soon subsided, and left him freer than usual from pain, he persevered in the use of it twice a day; each succeeding application creating less and less uneasiness, until at the end of three or four days, the disease was entirely removed. I have since had an opportunity of recommending it in three instances, with the same good effects: in one case the sphincter ani was so much relaxed, that the rectum protruded two inches, and the whole perinæum and surrounding parts, were ulcerated. As I am persuaded this plant has never before been employed in this way, and as some of our most valuable remedies have been discovered by chance, I have taken the liberty of troubling you with this communication, which you will be pleased to use as you think proper.

I am, dear Sir, very respectfully,

Your obedient servant.

T. WATKINS.

DR. JOHN REDMAN COXE.

Account of two Cases of Rheumatism, cured, one by Fear, the other by Loss of Blood; &c. &c. extracted from a letter of DR. MAXWELL SHARP, of Logan County, Kentucky, to DR. BENJAMIN RUSH; dated March 25, 1803.

“ I AM prompted to relate two cases of rheumatism which were cured by mere accident, one by fear, and the other by the loss of blood; and perhaps Dr. Rush, who is so well acquainted with the animal economy, may be able to draw something useful to society from them.

“ The first was a girl of about twelve or thirteen years of age, who had not walked for two years or more. Her father moved to the Red-banks, on the Ohio; and took lodgings in

a room belonging to a man of the name of Summers, up one pair of stairs; while Mr. Summers's family occupied that immediately below. One evening a cow came up to the door a lowing. Summers, after cursing her a while, to quit; at length, in a passion, caught down his rifle and shot the cow; then loading as quick as possible, discharged it up through the loft; at the same time raising the war-hoop in imitation of the savages. It being dangerous times, and on a frontier, it very much alarmed the family up-stairs, so that they all fled down. The diseased girl fearing to be left alone, in her fright rose up, and followed the rest of the family; and has continued free from pain ever since.

"The second was a man in Virginia, aged between forty and fifty: he had been troubled some years with rheumatic pains, so as to render him infirm. Being one day at work with an adze, he cut himself so as to occasion a violent hemorrhage, which could not be stopped until his blood would scarce stain a cloth. He lay speechless four days; his bleeding stopped, and he recovered to perfect health, and free from every complaint—and, to use his own phrase, was fifteen years younger. This information I had from his son, a man of undoubted veracity.

"I shall submit these to your consideration---If they are of any service, I shall be amply paid for penning them.

"We have, for four or five years past, been troubled with a fever, resembling the yellow fever in every particular; and I am induced to believe it is a species of the same, from the concomitant symptoms, but of a lighter grade. I have attended patients in it, who were as yellow as they could possibly be made by bile; at the same time with every other symptom recorded of the yellow fever: the same treatment has the desired effect, *to wit*, plentiful bleeding and purging; and where this is timely premised, it always prevents the yellow colour. It generally came on in the latter part of summer, and ceased at the commencement of cold weather; but this last winter its intermission was but short: it commenced early in January, attended by peripneumony and pleurisy; and was more obstinate and difficult to remove, than in the preceding summer.

“ In December last, a fever seized the inhabitants of the western country, nearly all at once. You would scarcely see one in a hundred free from it. It was called by the physicians, the influenza; but it had every appearance of the remitting bilious fever, or break-bone fever, described in your first volume. The pulse was full and soft, but not quick. Those who were attacked, had sickness at the stomach, great oppression about the heart and precordia, a depression of spirits, violent pain in the head and bones; and in fact, no part was exempt.

“ Bleeding had little or no effect; but a bilious cathartic never failed of entirely removing the disease, as soon as one motion was obtained, and in some cases even before it procured a passage.”

Account of an extraordinary Cure of a Wound of the Intestines.

THE following account of an extraordinary recovery from a wound of the intestines, was sent me some years ago by a relation in London, to whom it was given by a friend; but no information was afforded as to the author, or by what means the paper came into his hands.—As however the author has adverted to his connection with the Radcliffe infirmary,* I have concluded it might be useful to publish the case, as its truth may be perhaps established, by this measure.

Editor.

IN the evening of the 26th of September, 1775, I was called in great haste, to James Langford, a young man in the twenty-first year of his age, who had been maliciously stabbed

* The Radcliffe Infirmary is in Oxford, and was erected by the trustees of Dr. Radcliffe's benefactions.—It was begun in 1759, and opened for the reception of patients in 1770. See Medical and Physical Journal, vol. 8. page 126.

with a knife, in the left side of his belly. The wound was between two and three inches in length, running from the left *os ilium* obliquely upwards towards the navel. I found him lying on the floor, weltering in his blood, with a large portion of his intestines forced through the wound ; and I learnt, from the unfortunate youth himself, that, as soon as the wound was inflicted, the bowels began to appear ; and, by the time I got to him, which could not exceed ten minutes, I verily believe, that the full half of the intestinal tube was protruded through the opening. This I attributed, in some measure, to the fulness of the stomach ; for, immediately before the accident happened, he had eaten a very hearty supper. The wound at first bled freely ; but the *hemorrhage* was soon restrained by the pressure of the prolapsed intestines, which were, to a great degree, distended with air ; and from this circumstance I was flattered with the best hopes that they had escaped the assassin's knife ; but, to my great disappointment, it proved otherwise, as will appear most evidently from the sequel of this narrative. Examining his pulse, I found it was exceedingly low, quick, and interrupted ; his skin was all over cold and clammy, and he laboured under great langour, anxiety, and pain about the *præcordia*. He likewise complained of a disagreeable tingling and numbness of the whole thigh, leg, and foot, of the side wounded ; and acquainted me, that he dropped on the floor, in consequence of the inability of the limb to support him, and not from any faintness, as might have been reasonably expected, from the loss of blood, or through fear, to which, indeed, he seemed an utter stranger. I ordered him to be conveyed to his bed in an horizontal posture, lest the raising of the body might encourage a farther descent of the parts which still remained in the *abdomen* ; and a fomentation of port wine, with warm water, to be got ready immediately, out of which a double flannel should be wrung, and applied directly to the prolapsed intestines, and renewed occasionally, to prevent them from getting too

dry, as well as to preserve, as much as possible, their natural heat. The reduction of the displaced bowels was begun, with laying the patient's legs over an assistant's shoulders, who was desired to kneel upon the bed for that purpose, with his back towards him, and then the legs were brought forward as far as to the hams. By these means, the lower parts of the body were elevated, and, in consequence, the weight of the bowels falling back towards the chest, counteracted their further protrusion. While the patient continued in this position, I endeavoured, with my hands, to force the guts back into their proper place; but soon found, from the quantity of them protruded, together with their great inflation, that a larger, or more extended pressure than my own hands could afford me, was necessary; and not thinking it prudent to employ any of the by-standers in so hazardous a task, lest, by their inexperience they might handle the bowels too roughly, I sent for two of my fellow-labourers in the care of the Radcliffe infirmary, to my assistance. As soon as they came, the reduction was again attempted; one of us directing that portion of the bowel which was last protruded, while the two others made a gentle, regular, and circumscribed pressure from all sides towards the opening. But this endeavour not succeeding, convinced us, that it would be much safer to enlarge the wound, to facilitate the return of the prolapsed parts, than hazard the necessity of handling them too much, or exposing them too long to the circumambient air, either of which would, in all probability, have proved fatal. This being done accordingly, by continuing the wound in the same direction upwards, about two inches, the exposed bowels were easily and soon returned into the *abdomen*. We then brought the edges of the wound together, and kept them by the suture called *gastrostomia*, leaving a proper opening in the most depending part of it, for the discharge of the blood or matter which might be collected in the cavity; and afterwards it was dressed in the usual way, lightly, and almost superficially, with an anodyne poultice over all.

The regimen enjoined him, with respect to diet, was only gruel, panada or sago; with barley water or thin gruel to drink; and the medicines were the following:

℞ Mannæ

Ol: Amygd. D. ana ʒss.

Aq: Alexit. simp. ʒi.

— Nucis moschat. ʒi.—M. ft. haustus quamprium sumendus et quartâ quâque horâ repetendus donec alvus responderit.

℞ Decoct. Pectoral. ʒviij.

Ol: Lini ʒij.

Tinct. Thebaic. gt. xl.—ft. enema quovis tempore infundendum si dolor abdominis urgeat.

27th. Visiting him early the next morning, I found the night had been spent in great restlessness and inquietude, notwithstanding the clyster had been thrown up according to the direction. He was exceeding low; his skin felt still cold and clammy; his pulse weak and fluttering; he complained of frequent chills, and an oppressive tightness of his belly, though the wound had discharged considerably a thin, serous humour, which had wetted the bandage quite through. Nor was the tension of the *abdomen*, at this time, sufficient to account for the oppressive pain he complained of; from whence I concluded it to be spasmodic.

The dressings were removed; and I desired my apprentice to foment the part with an infusion of the emollient flowers, for a full hour, and to take particular care that the stupes were applied of a very moderate warmth; often having observed, that this manner of applying them, when an inflammation was either to be resolved or prevented, was more effectual than when the heat has been greater. This observation, upon a little reflection, will be found agreeable to reason; for as great heat proves an astringent, on the contrary, a moderate and

kindly warmth relaxes, and, by promoting a free perspiration of the parts to which it is applied, sooner effects the end proposed. The wound was dressed as before, with the addition of two ounces of the species procataplasmate de cymino to the poultice; and, as the draughts he had taken had not produced any motion of the bowels, it was thought proper to inject the underwritten clyster, as soon as it could be prepared :

℞ Decoct. pro Clyst. ℥viij.
 Ol : Lini. ℥ij.
 Elect : Lenitiv.
 Mel. Solutiv. ana ℥fs.—ft. enema.

This, in about half an hour, occasioned a very copious discharge of *faces*, together with a good deal of *blood*; some of it congealed into lumps, the rest fluid. This circumstance did not fail to alarm my apprehensions of the imminent danger of the lad's situation, as it was no longer to be doubted, but that the bowels were wounded in some part of them; but what part, still remained a matter of conjecture. When the clyster had done operating, he took this draught :

℞ Sperm. Ceti, (Mucilag. Gum. Arab. Solut.) ℥i.
 Aq. Alexit. Simp. ℥ifs.
 Ol. Amygd. D.
 Syr. de Meconio. ana. ℥ij.
 Tinct. Thebaic. guttas x.—M. ft. haust.

Late this evening the fomentation and dressings were again renewed, and directions given, that he should take one of the draughts, with manna, oil, &c. as first prescribed, at three o'clock in the morning; and to repeat them regularly every fourth hour, till they had had their desired effect.

28th. He had got but little sleep in the night, though he had lain something quieter, with short, but interrupted slumbers intervening. His pulse, and all the other symptoms, were much in the same state as yesterday, excepting a general soreness of the *abdomen*, of which, at this time, he made great complaint,

and more particularly about the wounded part. The whole belly was full and tense; and, when I struck it with my finger, it returned an *emphysematose* sound. The discharge from the wound was increased; it had stained the bandage of a deep reddish-brown colour, and was of a disagreeable smell. The draughts he had taken had not yet moved him; therefore, I desired they might be continued, according to the general direction; and that, in case any stools should come off, to put them by, separately, for my inspection. By the time I made my evening visit, he had had two motions; in the first there was a good deal of fluid blood; with the last, but little, no more than just to give it a tinge. He was evidently relieved by the evacuation; was calmer and more composed; his pulse was rather more up, and his skin warmer. He said, he found himself lighter; and he was not so tight, and thought he breathed with more freedom. When I came to loosen the bandage, I was greatly surprised to find it daubed all over with the discharge; but, as soon as the dressing was removed, there was no evidence wanting to assure me, that this discharge was in part *fæcal*, not only from the colour and smell of it, but likewise from the sharp pain it had occasioned in passing through the wound. My hopes of his recovery now began to fail me; however I resolved to persevere, and act as though I was sure of success. After dressing, he was ordered to take the anodyne draught, and to begin again the manna draughts, with oil, early in the morning.

29th. Before I came to visit him, he had had another motion; and the nurse informed me, that his night had been better than any of the preceding ones, he having slept, at different times, full three hours. His pulse was stronger, but remitting, and his skin inclining to perspire. The tongue was foul, and the water clear and pretty high coloured. In the stool, which had come off this morning, I did not find any blood, or in any he had afterwards during the time of his confinement. The wound had discharged a great deal, and was more inflam-

ed; and the edges of it looked thick and ill-natured, and were ready to separate from each other. The tension of the belly still kept up, though I did not perceive, that it had at all increased. The opening draughts were continued, once in six hours only, through the course of this day, which kept him sufficiently open; and the anodyne was repeated at ten o'clock this night.

30th. This morning, things wore but a melancholy aspect. His night had been restless, and his head confused, and he talked sometimes incoherently; his pulse was increased, though exceedingly irregular, and the skin felt hot and dry; he was thirsty, and complained of a great tightness, particularly about the region of the stomach; his countenance was hollow, the eyes being sunk, with a deadness in them not easily to be expressed. The wound had discharged very much, and it was extremely offensive. The edges of it were inverted, much swollen, and separated from each other considerably more than the preceding day. He likewise complained of a sharp, burning pain, deep in the wound, but could not express precisely where. As soon as the wound was dressed, the anodyne clyster was administered; and I desired, that he might have a small basin of the infusion of mint, with a knob of fine sugar, got ready for him as soon as possible, and that he would sip it down as warm as he could. At two o'clock this afternoon he was seized suddenly with a most violent vomiting, and brought up a large quantity of bile. This I the more wondered at, as he had never made the least complaint of sickness, or *nausea*, from the time of his accident; for every thing he had taken, had sat easy and well upon his stomach. What he had brought up was of so dark a colour, that I imagined it was mixed with blood; but, upon a careful examination of it, found I was mistaken. When the vomiting was over, the nurse gave him a little more of the mint infusion; and, soon after, he fell into a sound sleep, which continued more than an hour. In the evening he was hot and uneasy, complaining of thirst, and a pain in his head; his pulse was increased, and his skin felt dry. The

wound had made a prodigious discharge, which I observed always to increase, in proportion, as the bowels were more or less loosened by the medicines he was taking; and, from the violent efforts of the *abdominal* muscles in the time of his vomiting, most of the stitches in the wound were broken, so that you might plainly see into the cavity of the *abdomen*. After dressing the wound, twelve ounces of blood were taken from the arm, and the anodyne draught was given to him soon after.

October 1st. I learnt, from the people about him, that for a few hours, after he had taken the *opiate*, he lay composed; but, soon after midnight, he awaked in great hurry and confusion, complaining of his stomach and bowels, accompanied with convulsive twitchings of the tendons; and that, about five o'clock this morning, he brought up another large quantity of bile, which gave him great relief; for afterwards he lay perfectly easy, and got between two and three hours sleep. At nine o'clock, when I made my morning visit, I found him much refreshed, and without any kind of complaint. His pulse was full, but much steadier than it had been any time before, and his skin was open. The water he had made was turbid, though still high-coloured. The wound, indeed, made but an indifferent appearance; the edges of it were very sloughy, particularly the tendons of the oblique muscles, and so far receded from each other, as to make it necessary to divide the remaining stitches. The lower part of the wound, or that next to the *ilium*, was beginning to digest, and the inflammation and tension of the belly to abate. The opening draughts, made a little warmer, were continued, which kept the bowels constantly and gently open. In the evening his pulse was rather increased; and I found that, some time in the afternoon, he had brought up a little more bile, though without any previous complaining. After dressing, I directed more blood to be drawn, and the *opiate* to be repeated.

2d. The nurse acquainted me this morning, that her patient had had a very quiet night, and had slept many hours without

intermission; that he had taken a sufficient quantity of nourishment, and that it had sat well on his stomach. I found him cheerful, without any complaint, except that of hunger. His pulse was steady, his skin soft and open, his tongue getting cleaner, and his water beginning to break. The discharge this morning, from the sore, was exceedingly offensive, and when I had taken off the dressing, I was really astonished at the horrid appearance! The wound was burst open, in such a manner as to assume a circular form, and was rather more than three inches in the least diameter of it. In the base of this dreadful opening, there was nothing to be seen but the circumvolutions of the small guts; and how this amazing breach was to be restored, I could not easily conceive. Had any one taken a view of the wound at this time, who was unacquainted with the real progress of it, he must naturally have concluded, there had been a great loss of substance. The patient was dressed with thin pledgets of very fine unformed lint, moistened with the oil of the flowers of the *hypericum*, luke-warm, laid first upon the exposed bowels; afterwards the cavity was filled up lightly with the same sort of lint, dry; the edges were covered with a moderately warm digestive, and the whole secured with the uniting bandage; which bandage had been used from the very beginning, to prevent, as much as art could prevent, the impending mischief.

3d. Appearances this morning were very favourable; he had slept well most part of the night; his pulse was perfectly quiet, and his skin moderately open. The water was become better coloured, and had made a fair separation; so that, from this time, all signs of fever, inflammation, and pain its concomitant, entirely ceased: nor did there ever arise any alarming, or even disagreeable symptom, afterwards; but every thing went on in an easy, regular way. The wound digested kindly, and was constantly dressed twice a day, as the quantity, and indeed the quality, of the discharge from it required. The opening medicines were repeated occasionally, and his nights secured by a few drops of the Thebaic tincture.

In a few days, the sloughs from the edges of the *abdominal* muscles separated, and left the fore so largely open, that I could easily discover from whence the *feces* made their *exit*, which was from the middle of that part of the *colon* that lies between the left kidney, to which it is attached, and the upper part of the *sacrum*, where it empties itself into, and forms the *rectum*.

It was exceedingly satisfactory and pleasing to observe, from day to day, the progress nature made in renovating this formidable breach, and her means of accomplishing it; for, after a little time, the surface of the intestines looked florid, and began to pullulate, throwing up small grains of flesh from every point. These *granules*, daily increasing, united with each other, and after filling up the intervals between the circumvolutions of the bowels, became one uniform surface; which surface meeting with that of the raw edges of the integuments, they both adhered together, and became one continued fore. As the wound incarnated, the *fecal* discharge lessened daily, and about the twenty-second or twenty-third day, entirely ceased. I now allowed him chicken-broth, milk-porridge, calves-feet-jelly, &c. The wound was dressed once a day with dry lint only, and in seven weeks it was completely healed.*

* In the 49th volume of the Philosophical Transactions of London, page 238, we have "An account of a very remarkable case of a boy, who, notwithstanding that a considerable part of his intestines was forced out by the fall of a cart upon him, and afterwards cut off, recovered, and continues well." By John Nedham of North-Walsham, Norfolk.

"The intestine cut off measured fifty-seven inches, by a string applied to the outer surface." The accident happened the 3d January, 1755. On the 7th of May, the boy walked seven miles to dine with the surgeon—was perfectly well, and walked back again the same afternoon.

See also Moseley's account of the recovery of a young negro woman, after great protrusion of the intestines, from the Cæsarian operation performed by herself. And another case more extraordinary, related by Mr. John Bell, of a soldier wounded by a halbert, who recovered, after walking a considerable distance with the protruded intestines wrapped up in his shirt and placed in his hat.

Editor.

The Case of a Person who lived fourteen Years without any Discharge from his Alimentary Canal.

A MAN aged fifty years, who lived in Richland county, South-Carolina, fourteen years before he died, had nothing to pass through his alimentary canal. I got acquainted with him two years before he died; he informed me, that twelve years before, he was taken with a violent pain in the region of the stomach, a constipation of intestines, and a puking of every thing he eat. The pain continued about fifteen days, and went off by degrees; but the constipation and puking continued.

At the time I first got acquainted with him, he informed me, that he could keep down whatever he eat, more than about three hours, and not longer; that slight sickness came on and increased, until the whole of what he eat was thrown off. He died about eighteen months ago, very much emaciated; so much so, that he could not walk, or even turn himself in his bed. He died without pain or fever—with pure debility.

Query.—Where was the stoppage? was it at the lower part of the duodenum?*

R. HENDRICK.

DR. BENJAMIN RUSH.

* I knew a boy at school, whose intestines were seldom excited to an evacuation, more frequently than once in a week, and then only in a small degree. He mostly in a few hours after his meals, discharged the excrementitious parts of his food by vomiting; which he could excite at pleasure. He swallowed his food with little mastication, and used afterwards to sit at his desk, and ruminate at pleasure.

Editor.

Abstract of a Case of Vaccine, of uncommon Magnitude. (With a plate.) By the EDITOR.

FROM a desire to present a view of the outline of an enormous vaccine pock, which occurred in the course of my practice, I am induced to extract the following history of the case, from a communication printed in the 7th volume of the New-York Medical Repository.

Molly Allen, a mulatto of twenty-five years of age, was vaccinated on the 9th May 1803, with infection of a year old. This attempt, as might be expected, failed. On the 18th, it was repeated with infection of the tenth day, then two days old, by two punctures of the right arm. One only took effect. On the eighth day, there was great local itching, with commencing tumefaction of the axillary glands, and febrile irritation. The pock was not much larger than usual at this stage. On the ninth day, the tumefaction of the skin indicated the presence of an areola, which was sufficiently evident the next day. I re-vaccinated her on the ninth, from the primary pock, to ascertain the constitutionality of the disease, as recommended by Mr. Bryce. Though so late in the disease, it took effect, and advanced so rapidly, that an areola commenced on the third day. Its scab came off the twelfth day, whilst that of the primary pock adhered till the twenty-fourth. Several little fiery-looking pimples appeared around the original pock on the tenth day, some within, and some without the areola, which disappeared in a few days. The patient was very inattentive, by using her arm in washing, &c. in the freest manner. The pain, and enlargement of the axillary glands increased; and the pock was now nearly half an inch in diameter, very perfect, and turgid with a limpid fluid. From her irregularity, I did not see her again till the fourteenth day. On

the thirteenth, she struck the pock against a lock, which broke it; and the fluid oozed out in great abundance, as might be expected, for it was now, considerably upwards of an inch in diameter. The second pock also, was fully one-fourth of an inch, though it was barely the termination of the fifth day. A scab had commenced in the centre of the primary pock, and was about one-third of an inch over. Its edges were plump, well defined, and elevated at least a quarter of an inch, with a hard tumid base, of between three and four inches diameter. Much itching, and considerable fever, continued several days, though less than might have been expected, from the size, and repeated irritation of the disease, from blows, &c. It continued its course favourably; and by the seventeenth, the scab was more than half an inch over; the circumference had greatly augmented, and an irregular desiccation had commenced, owing, I presume, to the continual rupture of the edges from injuries. Hence the uneven appearance of the outline of the pock at this period: (See Fig. 5.) The scab, in a few days, was perfectly formed, and fell off in separate pieces, from the constant moisture (from lead water) which had allowed the cuticle to contract irregularly. The second pock was larger than the dark circle E in the centre of the outline—representing the extent of the scab on the seventeenth day, when the outline was taken.

This case was attended with no very unpleasant circumstances, although such frequent injuries were sustained. For further particulars, the reader is referred to the Medical Repository.

The outline in the engraving, was taken on the seventeenth day, when it measured an inch and four-tenths in diameter, at its broadest part, from A to B,—and from C to D, one inch and two and one-half tenths. The dotted circle represents the regular pock before it had been injured, so as to dry up irregularly.

One circumstance, worthy of notice, relating to this extraordinary pock, is, that on the same day, and with the same infection which produced it in the above case, I vaccinated a black

infant of two months old; I had previously failed in exciting the disease in it, with a scab of four months old, and infection of thirty days preserved on glass. The child from this third attempt, had a regularly progressing pock, of the usual size. A cutaneous eruption of small watery blisters over its head and body, with which it had been plagued from its birth, and for which a variety of remedies had been employed, disappeared during the progress of the vaccine, to which, I believe, the cure was owing. No unusual occurrence took place from the vaccine. A number of small pimples appeared on the ninth day within the sphere of the areola, but subsided in two or three days.

Description of the curved Bistoury, as improved by DR. PHYSICK, for the Operation of Fistula in Ano. (With a plate.) By R. B. BISHOP, Surgeon's Instrument-maker, in a letter to the EDITOR.

Philadelphia, January 1st, 1805.

SIR,

THIS bistoury has a silver guard, to prevent the edge from cutting any part of the sinus in its introduction. The advantages it possesses over the one recommended by Mr. Whately, are, the simplicity of its construction, and the facility of relieving the blade from the guard; as it does not, like the one alluded to, require an assistant to manage the instrument, which must be somewhat embarrassing to the operator. This instrument has been several times used in Philadelphia with great approbation.

Fig. 1. The instrument in the handle, half open.

Fig. 2. The silver guard.

a a. A small button on each side of the guard, to relieve it from the blade.

b. A flott which slides upon the screw *c.* Fig. 1. to secure it upon the blade.

The blade is relieved by pressing forward either of the buttons most convenient to the operator. The guard is left in the sinus till the operation is completed.

Fig. 3 and 4. The extremities of the blade and of the guard, to shew the manner of their connection.

It is evident, that this instrument comprises in itself, the advantages of both the blunt, and the sharp-pointed bistoury.

I am, Sir,

Your most obedient servant,

R. B. BISHOP.

Some Account of the Agave Americana, which flowered at the Woodlands, in the Summer of 1804. Extracted from a Letter of WILLIAM HAMILTON, Esq. to the EDITOR, dated January 13th, 1805. (With a plate.)

“ I RAISED the plant from a sucker of that, which flourished at Springetisbury, in the year 1778; of course there can be no difficulty in determining its age. During the last summer, its height was between four and five feet, above the case in which it grew.

“ From the increased size of its base, on the 25th of May last, I first observed its inclination to flower. In a day or two afterwards, the sprout appeared, in the form of an overgrown shoot of asparagus. That habit continued, until the stalk was better than eight feet high, when the racemes began to appear.

“ On the 4th of June, the stem had grown two feet six inches. By the enclosed statement, you will learn the height to

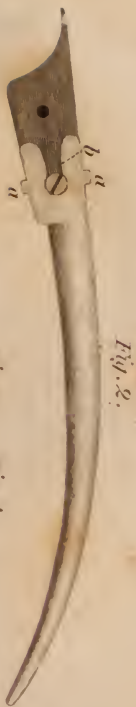


Fig. 2.

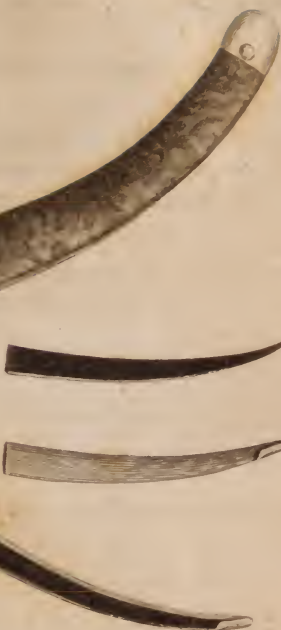


Fig. 3.

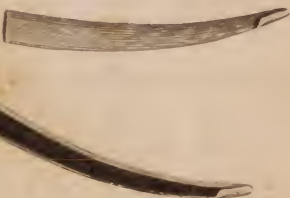


Fig. 4.



Fig. 1.



Fig. 3.

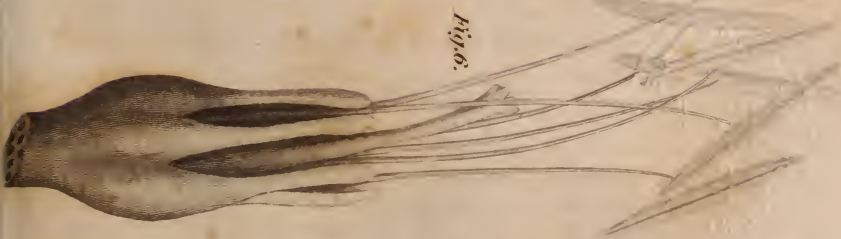


Fig. 6.

which it arrived on each succeeding day. The extreme wet season, I am apt to think, considerably retarded its progress. Had the summer been a common one, as *to heat and dryness*, it might possibly have risen many feet higher. It was observable, that during every twenty-four hours in which any rain fell, the stem grew less, than when the weather was dry. To this circumstance, I attribute the irregularity in its progress.

“Notwithstanding the rigour of the present season, the plant, which is out of doors, *although dead*, retains its erect form.”*

Feet. Inches. 8ths.				Feet. Inches. 8ths.					
June	4	2	6	0	Brought forward,	9	7	2	
	5	.	4	7	30	.	1	4	
	6	.	5	7	July	1	.	2	6
	7	.	3	3		2	.	1	7
	8	.	4	6		3	.	2	5
	9	.	4	4		4	.	2	4
10	.	4	6			5	.	3	7
11	.	4	6			6	.	3	2
12	.	3	7			7	.	3	3
13	.	2	0			8	.	1	7
14	.	3	2			9	.	2	6
15	.	2	7			10	.	1	6
16	.	2	7			11	.	2	7
17	.	3	5			12	.	1	4
18	.	2	6			13	.	2	3
19	.	5	2			14	.	2	2
20	.	3	7			15	.	2	0
21	.	2	2			16	.	2	0
22	.	1	3			17	.	1	0
23	.	2	3			18	.	1	0
24	.	2	6			19	.	1	0
25	.	2	6			20	.	1	2
26	.	2	6			21	.	0	5
27	.	3	3			22	.	0	6
28	.	2	4			23	.	0	5
29	.	1	7			24 to 28,	.	4	2
<hr/>					<hr/>				
Carried forward,	9	7	2		Total,	13	10	7	
Height of plant, exclusive of the flower stem,						4	7	1	
<hr/>					<hr/>				
Total height, from the top of the tub in which it grew,						18	6	0	

* The first flowers opened July 28th. It remained in flower for 40 days. The stem was, at its base, 16 inches in circumference. The number of flowers was 3069. The bees appeared exceedingly fond of the flowers.

The CHARACTER of the Agave, is thus given by Linnaeus in his Genera Plantarum, Class Hexandria. Order Monogynia.

“ AGAVE.

CAL. nullus.

COR. monopetala, infundibuliformis: *Limbo* fexpartito, aequali: *laciniis* lanceolatis, erectis.

STAM. *Filamenta* sex, filiformia, erecta, corolla longiora. *Antherae* lineares, filamentis breviores, versatiles.

PIST. *Germen* oblongum, utrinque attenuatum, inferum. *Stylus* filiformis, longitudine staminum, trigonus. *Stigma* capitatum, trigonum.

PER. *Capsula* oblonga, triangularis, utrinque attenuata, trilobularis, trivalvis.

SEM. numerosa.”

The Agave Americana, (whose flower is delineated in the engraving,) is thus noticed in the Species Plantarum.

“ AGAVE foliis dentato-spinosis, scapo ramofo. *Amen. Acad.*

3. p. 22.

Agave foliis spinoso-dentatis mucronatisque. *Hort. Ups.* 81.

Alöë foliis lanceolatis dentatis spina terminatis radicalibus. *Hort. Cliff.* 130. *Rey. Lugdb.* 22.

Alöë folio in oblongum mucronem abeunte. *Baub. pin.* 286.

Habitat in America calidior. *Cortusus plantam primus in Europa habuit* 1561. (*Cam. hort.* 11.) *hodie ab ea sepes in Lusitania.*”*

* In the London Magazine for July 1764, we have an account of the flowering of an Agave at Charleston, South-Carolina, in 1763. The plant was then about 28 years old, the leaves 7 or 8 feet long, and proportionably broad and thick.—On the 20th of April it gave the first appearance of putting out to blossom, bursting open the central leaves, about 6 feet from the ground. The 5th of May it exhibited the likeness of a monstrous asparagus.—On the 12th it was 15 feet high; having grown 5 or 6 inches every 24 hours, except on cold days.—On each side of the stem, about 10 or 15 inches below the top, appeared the shooting out of a substantial bud; every two or three days, as the plant advanced in height, others put out in the same manner.—June 10th. The

DR. STRONG'S *Account of his Axle Tourniquet, in a Letter addressed to the Editor of the Philadelphia Medical Museum. (With a plate.)*

Philadelphia, January 15th, 1805.

Sir,

I HAVE observed in the London Medical and Physical Journal, for October, 1804, a drawing and description of a tourniquet, furnished by Mr. Blake, as his original invention.

However fair he may imagine his pretensions to be to this discovery, I am compelled in justice to myself, to deny them with confidence: and I am sure, every claim which he has stated to originality, will be renounced, by the following exposition of facts. The instrument which he has presented to the public view, was invented by me, in the winter of 1799; and af-

several lateral and alternate buds, supported on peduncles of various lengths, from one to two feet ten inches, burst open into 5 or 6 subdivisions, each about 4 inches long, bearing numerous erect clusters of flowers.—The height of the whole stem being about 21 feet 10 inches. June 19. It was 24 feet high, and advanced much flower; the under leaves beginning to wither.—July 5th. There were 31 peduncles, supporting as many clusters of flowers, from 7 to 12 inches in diameter. The flowers began to open; and on the 7th the lower clusters were in perfection. Each flower was near 6 inches in height,* and about half an inch in diameter, of a brimstone colour; the circumference of the stem at 3 feet from the ground, was 17 and a half inches; each particular flower took up the space of 3 days to expand and reach its point of perfection.—July 16th. All the leaves of the plant, tho' still green, were flaccid, wrinkled, withered, and daily fell; the lower clusters of flowers withering, whilst those of the uppermost clusters were just opening. It was now 25 feet high.—On the 22d July, the flowers at the top of the spike were decayed, and the withering &c. daily increased.

The author considers it as essentially different from the aloë, as a pine from an oak. An engraving of the plant in flower is given, as also of an individual flower, which last greatly resembles the engraving in the plate given in the present number of the Museum.

* See Fig. 6. of the engraving, taken from a flower of Mr. Hamilton's Agave.
Editor.

ter receiving several improvements in 1800, was patented, January 29, 1801.

It was sent to London, April 10, 1800, to John Fry, jun. merchant, with a power of attorney, to solicit and receive in my name, a patent from the proper office, and to vend the same in Great Britain and Ireland, if the advice of professional men should render it expedient. I declined taking the patent at the stipulated price of one hundred guineas; and have suffered the model, drawing, and descriptions, to remain with him in London, to the present time.

I shall finish this communication, by transcribing the words of my patent in the United States, and the schedule annexed thereto, containing a description of the instrument; trusting, that this document will furnish satisfactory evidence of my just claim to the invention.

THE UNITED STATES OF AMERICA,

To all to whom these Letters Patent shall come;

WHEREAS, Joseph Strong, a citizen of the state of Pennsylvania, in the United States, hath alleged, that he has invented a new and useful improvement, called the Axle Tourniquet; which improvement has not been known or used before his application: has made oath, that he does verily believe, that he is the true inventor, or discoverer, of the said improvement, &c. &c. &c.

Given under my hand, at the City of Washington, this 29th day of January, 1801, and of the independence of the United States of America, the twenty-fifth.

JOHN ADAMS.

By the President.

J. MARSHAL, Secretary of State.

Attest,

CHARLES LEE, Attorney-General.

The SCHEDULE referred to, in these letters patent, and making part of the same, containing a description, in the words of the

said Joseph Strong himself, of his improvement, called the Axle Tourniquet.

Description of the Axle Tourniquet, invented by Joseph Strong.

It is named STRONG'S Axle Tourniquet, to be expressive of the mechanical power employed in its construction, and in contra-distinction to the screw tourniquet of Pètit, now in common use.

It consists of the following parts, viz.

1st. A brass plate of an oblong shape, two inches, more or less, in length, and one or more in breadth, with a slit near each edge, to admit the webbing used for the compression. The brass which forms the outside of the slits may be omitted, and small brass or steel rollers substituted, to lessen the friction of the webbing. The rollers are not essential, but may be used to diminish friction. The brass plate should be concave in a small degree, to receive a cushion, and to fit the limb in the best manner.

2d. Two upright standards, flat or round, fixed by rivet or screw near the ends, and on the central line of the brass plate, to support the axle or roller, which is received through holes made at equal distances in each from the plate, and near the top of each standard. The length of the standards may be varied as experience may best determine, from one and a half, to two inches and upwards. Upon the edge of the standard furthest from the handle, is fixed a spring stop, by a brass offset or steel knob, a small distance below the hole for the axle; which bears a strong steel bevil point through a square or round hole, to strike the central line of the gudgeon.

3d. The axle is of brass or steel, with a slit of the same length, as in the brass plate, to admit the webbing. The slit may be divided equally, by a steel bar sunk into, and rivetted through the roller; and the webbing passed round the bar,

and both ends of it through the slit, instead of passing one end of it over the half circumference of the axle. This method would produce the most exact movement of both parts of the webbing; but with the single slit, it is sufficiently equal for all practical purposes. To avoid the necessity of the slit, and to strengthen the axle, it may be solid, of brass wire or castings; and the webbing secured to it by a staple, strongly rivetted through it. The length and diameter of the axle may be varied according to the metal used, and the purposes to be answered. It moves on gudgeons in the upright standards, and by means of the slit or slits, or staple of the axle, winds up the webbing alike from each side of the limb, making the compression, true and equal. On the gudgeon, which is struck by the steel point before-mentioned, is cut notches, teeth, leaves, or holes half the length, or more, of the gudgeon, from the end towards the roller; which are entered by the bevil point of the spring, and forms a strong and safe stop upon the axle: on the same principle that a ship's windlass is stopped, when weighing an anchor. The advantage of the spring stop, is, in giving security to the compression, and to admit of relieving it with great facility when requisite.

4th. A handle balance-lever, or double winch, fixed upon the other end of the axle, to give it motion and mechanical force. This winch or double lever, is the wheel of the axle. Its length may be varied with the size of the axle, to give any degree of mechanical power wanted for the purpose of compression. The shape of the handle may be altered as experience suggests.

5th. A piece of webbing with buckles and cushions, to adapt to the limb, to compress the blood-vessels.

The size of the tourniquet may be varied to answer all the purposes of that instrument, in the field or navy: from the greater operations in surgery, to the simple act of phlebotomy. Small tourniquets of this kind may be made for the use of *bleeders*, to compress the veins; and if, by accident, any wound was made upon an artery, the power of the instrument would be equal

to stop the hemorrhage. On this account, it may be introduced by phlebotomists, and being a convenient compress for their purpose.

Varieties of Stops.

1st. A ratchet wheel on the end of the axle, with a slide or spring catch, to it.

2d. A screw, with a convenient thumb-piece, to pass into the edge of the standard, and thence to the central line of the gudgeon.

3d. A screw cut upon the end of the axle, and a nut with arms convenient to move it, which, by drawing the gudgeon against the standard, will prevent the axle from moving backward.

4th. A falling bar, slide or button, to prevent the handle from moving backward.

City of Washington, January 1st, 1801.

JOSEPH STRONG.

JACOB WAGNER, }
HAZEN KIMBALL. } *Witnesses.*

References to the Plate. Fig. I.

- AA. The two upright standards which support the axle.
- BB. The brass plate, to ends of which the standards are fixed by rivets or screws.
- C. The handle of the instrument.
- D. One of the rollers, the other being concealed by the webbing used for the compression.
- EE. The webbing, to which cushions or pads and buckles must be fitted.
- F. The axle or roller, with a slit in the centre to receive the webbing.
- G. The ratchet wheel fixed by screw to the end of the axle.
- H. The spring-catch or stop to the instrument, which enters the teeth of the ratchet wheel.

Figure 2.

A representation of the brass plate on which the other parts of the instrument are raised.

a a a a. The brass plate.

b b. The two rollers.

c c. The two slits between the rollers and plate for the webbing to pass through.

d d. The notches cut in the plate at its ends, where the standards are fixed by dove-tails and screws.

*An Account of the Efficacy of Blood-letting in the Cure of Dropsies.
Extracted from two Letters to MR. JOHN E. COOKE, Student of
Medicine in the University of Pennsylvania, from DR. THOMAS
SIM, of Leesburg, Virginia.*

I. *February 4th, 1804.*

“I HAVE lately met with a case of ascites, combined with anasarca, the practice in which being novel here, but perfectly conformable to Dr. Rush’s system, I feel an inclination to state to you. The subject was a woman in early life: previous to any appearance of her last disease, ascites, &c. she had been for some time ill with an autumnal bilious remittent which had debilitated her very much; when the enlargement of the abdomen was first perceived, her periodical fever, which had assumed the tertian type, disappeared: the effusion continued to advance rapidly, under the skin as well as in the cavity: in this situation I was called to her. I commenced (after a dose or

Dr Strong's Patent Tourniquet

Fig. 1.

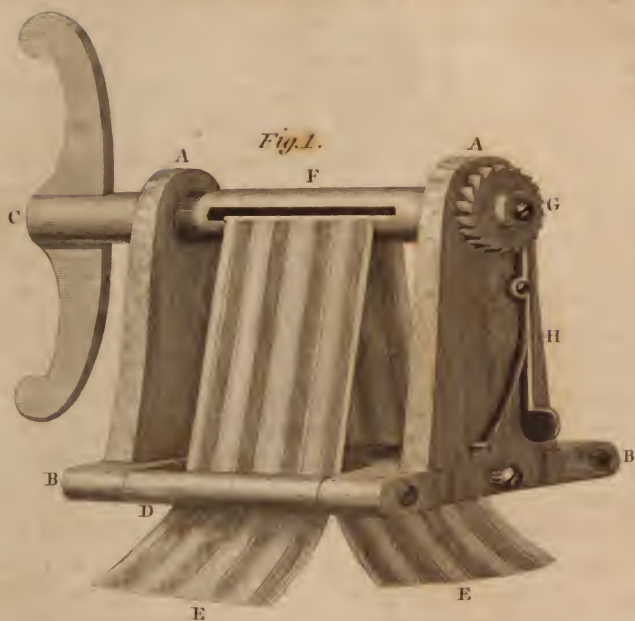
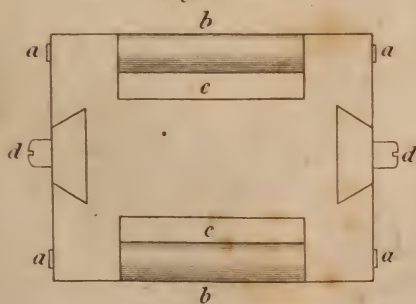


Fig. 2.





two of mild aperients) with the digitalis, and pursued it under every modification that it has ever been exhibited in, without any apparent advantage; finding this to fail, I turned by attention to the squills (a favourite medicine with me as you know) combined with small proportions of calomel; and here I was equally disappointed; the cellular substance was now so much distended, that I could scarcely perceive the beat of the radial artery at the wrist; the ascites especially still made a rapid progress. Thus baffled in every effort to be of service to my suffering patient, I applied myself with fresh ardor to the investigating of the nature of this disease; in order to which I attended principally to the pulse, and by it I was at length conducted to success. I found on the second day after the last determination an evident intermission, in the beat of the artery, to occur after the 5th or 6th stroke: from this circumstance I concluded that there existed a latent morbid excitement in the arterial system, suppressed by congestion somewhere, and determined to have immediate recourse to the lancet and active purges, consisting of jalap and calomel: the blood that was first drawn (about 15 ounces) was not fizy; that circumstance I did not expect: the day following, in the morning, I bled again, and in the mean time kept up moderate evacuations from the bowels. I now perceived the pulse to quicken considerably, and to become more tense, corded, and hobbling in its action; in the evening I took away about 18 ounces more of blood, and continued the mercurial purges: At this time, no change could be perceived in her bulk, nor in any of the sensible secretions or excretions. When sitting up, although a woman of moderate size naturally, she now filled a large chair. I was still confident from the change in the pulse that my ideas were correct, relative to the state of action in the system, and determined to persevere: with this resolution I visited her the next morning—but behold! to my great surprise and pleasure, I found her sitting up, reduced to a mere skeleton, there appearing not the smallest symptom of effusion under the skin or in the abdomen. She informed me that some little time after the last bleeding, a profuse discharge took

place from the skin; and an astonishing flow of urine soon followed, which continued till the swelling had entirely subsided. The result of no case that ever came under my notice, has afforded me so much pleasure. The triumph must be given (not to blind chance but,) to a principle in medicine; and, the saving of the patient should be ascribed to Dr. Rush, from whom I derived my reasoning."

II. *January 12th, 1805.*

"More cases than usual have occurred within the last three weeks, of general and partial anasarca, and in some instances combined with ascites. All these cases occurring in habits previously debilitated by the autumnal epidemic, have induced me, (with a single exception) to use the lancet, in connection with evacuants—and in every instance, the most apparent and unequivocal advantages have resulted from this mode of treatment."

An Account of the successful Use of Opium, Cordial Drinks, and Animal Food, in two Cases of Pulmonary Consumption. BY BENJAMIN RUSH, M. D. Professor of Medicine in the University of Pennsylvania.

ELIZABETH DAVIS, aged about 25 years, was admitted into the Pennsylvania hospital, on the 7th of February, in apparently the last stage of pulmonary consumption, brought on by an attack of fever six months before. She expectorated pus in large quantities, had a diarrhoea, and spoke only in a whisper. She was moreover so weak as to turn herself with difficulty in her bed. Her pulse had notwithstanding a small degree of *tension*. As I considered this tension in her pulse, an obstacle to the use of the only remedies that were indicated in her case, I directed four ounces of blood to be drawn from her, and ordered a blister to be applied to her breast, and small doses

of calomel, tartarized antimony and nitre, with a little laudanum, to be given to her every two hours. On the 12th of the month I found her pulse so much changed into that state of weakness, softness, and frequency, that characterises a typhus fever, that I directed her to take two grains of opium every night. On the 19th she complained of a sore mouth, and of a difficulty in swallowing her opium pill: I now directed the calomel to be laid aside, and instead of the opium in a solid form, I ordered her to take eighty drops of laudanum at bed-time and fifteen every morning and noon of every day.

On the 26th her diarrhœa returned, for which I prescribed the chalk julep, rendered cordial by an unusual quantity of laudanum. It had the desired effect. On the 1st of March I found her pulse evidently *slower* and *fuller* than it had been, and without any tension. Her voice became stronger, her cough was less frequent, and her expectoration less copious than they had been, and she now complained only of pains in her head and back. I considered this change in her symptoms as highly favourable, and in order to secure the advantages thus obtained over her disease, I directed her to take one hundred and twenty drops of laudanum and a pint of wine in the course of a day, and to live wholly upon the most cordial animal food. My tour of attendance at the hospital expiring at this time, I committed her to the care of my successor Dr. Park, who politely continued the use of my prescriptions, by which means she was rapidly restored to health, and discharged cured on the 9th of April.

On the 6th of August, a woman with a full face and rosy countenance, came up to me as I was getting out of my chair to visit a patient in Fifth Street. She expressed her gratitude to me in strong terms for my services to her. I did not recollect her, and asked her name. With equal surprise and pleasure, I learned it was Elizabeth Davis. She appeared to be in perfect health.

NICHOLAS MESSENGER, a German, about 30 years of age, who had lately arrived in Philadelphia from his native country, was admitted into the Pennsylvania hospital on the 31st of October with a pulmonary consumption, brought on by a cold taken between two and three months before. All his symptoms, which were a severe cough, purulent expectoration, chills, fever, hoarseness, and a degree of weakness which confined him constantly to his bed, indicated a speedy and unfavourable issue of his disease. His pulse was too active for cordial remedies. I prescribed for him a blister to his breast, and the same mercurial and antimonial medicine with nitre, that I prescribed in the case of Elizabeth Davis. The mercury gently affected his mouth on the 14th of the month. His pulse felt its effects, and suddenly assumed the typhus action. I now directed the mercury to be discontinued, and ordered him to take two grains of opium every night, and a solution of liquorice in water with laudanum, to ease his cough during the day. I prescribed at the same time, drinks of the most cordial kind, particularly wine, and brandy toddy, and animal food of all kinds to be taken as often and in as large quantities as his stomach would bear them. On the 21st of the month, his pulse became *fuller* and *slower*. On the 23d a diarrhœa, and a return of the weakness and frequency of his pulse induced me to order him to take three grains of opium at bedtime, and the chalk julep strongly impregnated with laudanum during the day. The complaint in his bowels soon yielded to these remedies. On the 1st of December his pulse again became *fuller* and *slower*. On the 5th he appeared to be much better. He slept soundly for three hours at night, coughed less, and ate his food with an appetite. On the 8th he left his bed, and walked out of his ward. On the 12th his pulse became regular, and all the symptoms of disease left him, except a troublesome wakefulness which often follows a recovery from violent and dangerous diseases. On the 15th he not only said he was well, but discovered the signs of a complete recovery in the return of flesh, a florid complexion, and in an ability to take exercise. On the 15th of January 1805, he was discharged from the hospital, cured.

Both the above patients were seen during the whole course of my attendance upon them, by more than an hundred students of medicine. Upon these cases, I shall make the following remarks :—

1. It is difficult to tell the precise state of the lungs in these cases. It was evident a purulent expectoration took place in each of them. A similar issue from stimulating remedies should not be expected where the lungs are affected with tubercles. It is, however, in favour of those remedies, that consumptions with that issue from them, are less common in the United States than any others, more especially when they are of a recent nature.

2. The use of the stimulating remedies which have been mentioned, should be confined to a weak or typhus state of the pulse. In its inflammatory state, they do harm, and in its hectic state, they are generally ineffectual. It is not peculiar to the pulmonary consumption to resist the power of medicine, before it puts on its worst symptoms, or reaches its last stage. This was the case with the Jewish leprosy, and is still observed in several modern diseases.

3. It has been said that there exists for every disease a specific remedy, and that sooner or later that remedy will be discovered. Without combating this assertion, I will say, that most diseases have a *precise* or *appropriate time* in which only, certain remedies do service. This remark applies with peculiar force to the pulmonary consumption, and it is because the remedies for this disease are administered without a due regard to the *different*, constantly *varying*, and often *opposite* states of the pulse, that bleeding, emetics, riding on horseback, a milk and vegetable diet, sea voyages, labour, digitalis, a salivation, opium and stimulating drinks and diet not only fail of success, but often do harm. The fable of the wax, which attempted to acquire the hardness of the brick, by throwing itself into the fire, is big with instruction to physicians under this head. We are less in want of new

medicines, than of a knowledge of the *times* and *manner* of giving old ones, to enable us to cure obstinate and mortal diseases.

4. An increase in the fulness, and a diminution of the frequency of the pulse should always be considered as a signal to proceed with the use of stimulating remedies in this disease. An increase of the frequency of the pulse or a revival of its tension from the use of those remedies, should always lead us to discontinue them.

5. Animal food was preferred in the above cases to bark and the common stimulants of the shops, upon the account of its furnishing the materials for a quick and plentiful supply of blood, and thereby producing fulness and force in the blood-vessels, (now nearly exhausted of their irritability) by its *direct* stimulus upon them, and thus enabling them to perform their healthy actions in every part of the body, and more especially in the lungs. Perhaps some advantage is derived from the stimulus of animal food upon the system by the pleasurable sensation it excites upon the tongue. This sensation is the more delightful, and the more diffused in its good effects, from the patients having been long deprived of animal food, and from their longing for it.

6. Lest an improper use should be made of the prescription of brandy toddy in the case of Nicholas Messenger, I shall conclude these remarks by adding, that I never prescribe ardent spirits as a cordial, except, where I wish to obtain a *prompt* or immediate effect from them, in which case they are to be preferred to wine, and are often more acceptable to the stomach than opium. In chronic diseases of weak morbid action, and in simple debility without disease, ardent spirits cannot be taken long enough to produce a salutary effect, without endangering a subsequent attachment to them, and thus creating worse diseases than those they were taken to cure.

Observations on Mr. Goldson's Pamphlet, &c. in a Letter to the Editor.
By JOHN CHURCH, M. D.

Philadelphia, Feb. 1st, 1805.

SIR,

I RETURN you the pamphlet of Mr. Goldson, and with it my thanks for its perusal.

From what I had previously heard of this work, I was induced to think the author might be entitled to some degree of credit, in calling the attention of medical characters to more minutely examine a disease, new as to its discovery, and in which there may, no doubt, be some circumstances which should be attended to and explained, of which we may at present be ignorant. But it is to be sincerely lamented, that this gentleman had not more maturely considered the subject before he committed it to the press, as it is, of all others, a subject of such vast importance to the happiness of mankind.

He has mentioned several cases which have fallen under his particular care, of small-pox, *as he supposed*, occurring after vaccination. He relates them with a view of proving that the inoculated cow-pock has only a temporary influence on the human system, although at the same time he admits the permanent effects of the casual cow-pock, than which, nothing more unphilosophical could have been promulgated. This attempt to disturb the peaceful interests of society, by exciting in the minds of very many timid and anxious parents, groundless apprehension, and to retard the progress of vaccination, calls loudly for the friends of this practice to step forward promptly in its defence: for, as Mr. Ring very justly observes, "while unfavourable cases are circulated with great industry, by the enemies of vaccine inoculation, or its *pretended friends*, it appears, that the real friends of the practice are lulled into a state of false security, and become rather remiss, and being convinced themselves, imagine that the public are convinced also. Hence they leave the field to their more active opponents, who improve the favourable occasion to their own advantage."

The cases Mr. Goldson has stated to support his opinion, which are related in a manner, (in my opinion) unsatisfactory to every person but himself, leaves us room strongly to suspect that some of them never had the small-pox; and there certainly appears to be still greater room to doubt, whether several really ever had the cow-pock.

Mistakes of this kind have been by no means rare, and have given rise to various reports, which have been industriously encouraged by ignorance or prejudice. Dr. Lettsom says that many mistakes have been committed by practitioners; matter has been taken from the chicken-pox, and too frequently from the purulent fluid round the scab of the cow-pock; and in either case it is needless to say, inoculation, under such circumstances, is no security against the small pox.

To shew that it is not in vaccine inoculation alone that mistakes have been made, even by practitioners of established character, I beg leave to give you the following cases which occurred not long since.

I was called on the — of December last to visit the second daughter of capt. M——, a delicate little girl, about eight years of age. She had been ill two days, with considerable fever, sickness, and occasional vomiting, with great uneasiness in the head, back, and limbs. These symptoms, by a little bleeding and the antiphlogistic treatment, were soon relieved, so that on the third day she was able to sit up. Her skin at this time was covered with an eruption which appeared much like small-pox: however, as her parents declared she had when young, been inoculated by a respectable physician in the country, (Dr. Goldborough, of New-Castle) who I conceived could not have been mistaken, I supposed it possible the eruption I then saw, might be varicellous. On the second day of the appearance of the eruption, it assumed so much the semblance of small-pox, that I found no difficulty in making up my mind. The disease went regularly through its different stages, and the child, though extremely full, recovered without accident.

Ten or twelve days after the indisposition of this girl, a younger child, a son, was taken ill with the same symptoms;

a cooling regimen was pursued the first twenty-four hours—on the morning of the second day, his skin was filled with an eruption, accompanied with considerable fever and much starting: he was still kept cool, a small quantity of blood was taken away, and a dose of oil administered, which operated kindly. In the evening he was seized with convulsions of the most violent kind: the eruption which had taken place, was now more general, with every marked appearance of small-pox: he died on the morning of the third.

This child had likewise been inoculated by the same physician, and declared by him to have had the disease.

The second day after this child was taken ill, the eldest daughter, a young lady of fourteen, who had been inoculated when an infant, by Dr. Pfeiffer (the elder), and declared by him to have had the disease sufficiently, was attacked in the same manner; about the usual period, an eruption of small-pox took place over the whole body, which went regularly through its different stages; and after a very painful and distressingly loathsome illness, she recovered.

Could these cases for the smallest moment excite a doubt, whether the artificial introduction of the variolous infection into the human body, is a certain preventive of any subsequent influence of that matter on the same person, either naturally or by inoculation?

Should we not more reasonably and justly attribute them to some mistake in the conduct of the inoculation, either respecting the matter, or the appearance of the disease produced by it?

I not only mention these cases with a view of shewing, that mistakes have been made, not alone in vaccination, but in the inoculation for small-pox, and by physicians on whom every reliance could be placed: but they may also be useful in giving us another proof, if proofs be still wanting, of the powerful effects of the vaccine disease after it has completely gone through its different stages, in preventing the subsequent influence of the variolous infection.

The youngest child, now more than two years old, was vaccinated by Dr. Pfeiffer, jun. when quite young, and had

the disease completely. During the time its sisters were confined with the small-pox, it was kept almost constantly in the room, and very frequently slept in the bed with one or other of them. This child never had the least indisposition.*

On the Purification of Pomatum by Charcoal. Communicated to the Editor by MR. JOHN PHILLIPS.

I TOOK five pounds of hard pomatum which was very rancid, and put it into an iron pot with a little rain water : as soon as the whole was melted, I took about two ounces of small pieces of charcoal† and threw it into the melted mass, frequently stirring it, and let it boil for the space of fifteen or twenty minutes; I then filtered it through a piece of flannel, laid in a common hair sieve; then kept beating it till cold with a wooden spatula, adding by degrees a small quantity of rain water. When cold, I poured it into a vessel containing rain water, and washed it in three different waters, in order to whiten it. I then put it into a marble mortar, and rubbed it well with a wooden pestle until it was entirely free from any watery particles. I then committed it again to the pot, and melted it over a slow fire, with the addition of a little water sufficient to prevent an empyreuma, and let it boil for ten or fifteen minutes. I let it remain in the pot all night; in the morning I took it out in a hard cake, and found all the smaller particles of the charcoal incrustrated at the bottom, which I scraped off, and put it by for use thoroughly purified from its rancidity.

May 30, 1798.

* Dr. Pallas in his travels through Southern Russia, Vol. I, p. 186, assures us that his daughter was seized with the small pox, for the second time. *Editor.*

† I was not accurate in the charcoal, as I did not weigh it, but was guided by letting a little fall off the end of the spatula into water, by which means I was able to determine whether the charcoal had absorbed the whole.

MEDICAL AND PHILOSOPHICAL REGISTER.

FOREIGN AND DOMESTIC.

AT a stated meeting of the American Philosophical Society held at their hall on Friday, January 4th, 1805, the following persons were duly elected officers of the Society.

President—Thomas Jefferson.

Vice-Presidents—C. Wistar, R. Patterson, B. S. Barton.

Secretaries—J. R. Coxe, A. Seybert, T. C. James, T. T. Hewson.

Counsellors for 3 years—J. Woodhouse, S. Duffield, W. Shippen, Z. Collins.

Curators—C. W. Peale, J. Church, R. Hare, jun.

Treasurer—J. Vaughan.

At a stated meeting of the A. P. S. held January 18th, 1805, the following persons were elected members of the society.

John Maclean, M. D. Prof. Nat. Phil. and Chem. in the college of New-Jersey.

Edward Miller, M. D. of New-York.

Rev. John Prince, of Salem, Massachusetts.

Capt. W. Jones, of Philadelphia.

Charles Smith, of Lancaster, Pennsylvania.

William Hawes, M. D. of London.

Samuel Moore, of Philadelphia.

Francis A. Vanderkemp, of Oneida county, New-York.

Benj. Silleman, Prof. Chem. and Nat. Hist. in Yale Col. Con.

John Vaughan was chosen *Librarian*.

THE thanks of the society are presented to the following persons, for the *Communications* and *Donations* affixed to their respective names.

JOHN VAUGHAN, *Librarian.*

Philadelphia, Jan. 18, 1805.

COMMUNICATIONS.

On the occultation of Aldebaran in the disk of the Moon, 21st October, 1793. By J. J. de Ferrer.

Facts and Observations on the Beaver of N. America, collected by Mr. Heckewelder, communicated by Dr. Barton.

On many of the pernicious Insects of the United States; intended for the Magellanic premium.

A set of Tables, with their application to an useful Improvement in Navigation and Surveying, signed C c b R. for the Magellanic premium.

An Account of the Great Cold at Northampton, G. B. Jan. 7th, 1776. By Dr. A. Fothergill.

DONATIONS.

A model of a Life-Buoy. By T. Hamilton.

A model of his temporary Rudder. By capt. Mugford of Salem, Massachusetts.

A number of Shells and Corals from Sumatra. By capt. A. Newell, of Boston.

FOR THE LIBRARY.

Asiatic Researches, 7 Vols. royal 4to. Calcutta. By the Society.

Transactions of the Royal Irish Academy. 2 to 9, 4to. By the Society.

Letters and papers of the Bath and West of England society. 9 Vols 8vo. By the Society.

Transactions of the Batavian Society of Haerlem. 30 Vols. old Series—1 Vol. new. By the Society.

Catalogue of the Library of the London Medical Society. By the Society.

Sixteen numbers of the Journals of the Royal Institution of G. Britain : also an account of the Library, and Mineralogical Establishment. By the Society.

Supplement to the Encyclopedia. 3 Vols. 4to. By Thomas Dobson.

Voyage dans L'Egypte. Par Vivant Denon. 2 Vols. imp. fol. By Wm. McClure.

The Works of James Wilson, Esq. 3 Vols. 8vo. By Bird Wilson, Esq.

Traité de la Fièvre jaune de l'Amerique. 8vo. Par L. Valentin, M. D. By the Author.

Memorial of the French in reply to the English, respecting the war of 1755. By Dr. Mease.

Alcoran of Mahomet from the French of Du Ryer. 4to. Assertion of the 7 Sacraments by Henry 8th, against Luther. 8vo. By T. Stretch, Esq.

Thesaurus Medicus, G. Smellie. 2 Vols. 8vo.—Collection of Pennsylvania Almanacs : by Franklin, &c. By Dr. James.

Dr. Hawes' Annual Report to the London Humane Society.—Giles' Sermon on premature Interment.—Cautions concerning the Poisons of Lead and Copper. By Dr. A. Fothergill.

Narrative of the Sufferings of capt. Woodward among the Malays. 8vo. By Wm. Vaughan, of London.

English Translation of the Geometria of Peter Ramus. By T. Hamilton.

Account of the re-establishment, &c. of the University of Wilna in Russia. By A. Stroynowsky, Rector of the U.

Furling's American Coast Pilot.—Geography of J. Payne. 4 Vols. 8vo.—Roman Conversations, by J. Wilcocks. 2 Vols.—Recherches physiques sur le feu, par Marat. By J. Vaughan.

Deposited with the Society, by Wm. Loughton Smith, Esq. a very valuable Collection of Engravings, and Books relative thereto; sent to this country from Italy, by his brother Joseph Smith, Esq. in prosecution of a plan to promote a taste for the Arts in the U. States.

The Medical Society of North-Carolina, at an annual meeting held in the city of Raleigh on the 10th of Dec. entered the following gentlemen, officers of the society for the ensuing year.

Dr. John C. Osborne, *President.*

Richard Finner, *Vice-President.*

Robert Williams, } *Censors.*

James Webb, }

Calvin Jones, *Secretary.*

Elias Harvey, *Treasurer.*

In the year 1793, the late Mr. Richard Wells put into my hands a manuscript copy of some medical cases, which had occurred in the practice of his father, Dr. Wells, (then living near Sheffield, in England,) a cotemporary of Drs. Mead and Cheyne. The following statement of the consumption of food, in a case of canine appetite, by a boy of eight or ten years of age, was recorded, but unaccompanied with any history of the disease, or mode of treatment. The patient died, but his dissection was not permitted. The quantity eaten at each meal, of every article, is given in pounds, half pounds and quarters, for each day;—counting the pint of fluid as equal to the solid pound. I think it useful to preserve the fact, though incomplete, in hopes it may hereafter prove of service.* *Editor.*

* In the Bulletin des Sciences—volume 3d, page 119—we have a remarkable account of a monstrous voracity, by C. Percy, to which he gives the name of Polyphagia. See also Tilloch's Philosophical Magazine, volume 13, page 294.

This case is so extraordinary, I shall introduce it here, as the books referred to, may not be easily procured.

"A young man, in the environs of Lyons, named Tarare, at an early period of life, having followed a company of Mountebanks, had accustomed himself to swallow pebbles, large offals of meat, coarse fruits, knives, and even living animals. Terrible colics, and other violent affections, were not able to make him renounce this dangerous habit, which soon became an imperious want.

"Having enlisted in the beginning of the last war, in one of the battalions of the army of the Rhine, he fought in the neighbourhood of a flying hospital, the necessary aliment. The refuse of the kitchen, the remains of the soldier's allowance, rejected articles and putrid provisions, were not sufficient to satiate his appetite. He often contested with the vilest animals for their disgusting food, and he was in the continual pursuit of cats, dogs and serpents, which he devoured alive. It was necessary to drive him away by force or threats,

	Thursday.	Friday.	Saturday.	Sunday.	Monday.	Tuesday.	Total
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Milk	2.3.6 $\frac{1}{4}$.3.7.3.2	2.4.2.8.4.2.2.4.2	8.2.2.2.2.2	6.2.4.2.4.2.2.2.2.	8.2.4.4.4.	8.4.2.	134 $\frac{1}{2}$.
Water	6 $\frac{1}{4}$.6 $\frac{1}{4}$.3.	2.4.2.2.2.	2.6 $\frac{1}{2}$.6 $\frac{1}{2}$.2.	6 $\frac{1}{2}$.8 $\frac{1}{2}$.6 $\frac{1}{2}$.2.	2.6.6 $\frac{1}{2}$.2.	2.6 $\frac{1}{2}$.6 $\frac{1}{2}$.2.	101 $\frac{1}{2}$.
Bread	1.4 $\frac{1}{2}$.3.1.	2.3.1.1 $\frac{1}{2}$.	1.4.4 $\frac{1}{2}$.4 $\frac{1}{2}$.	2.4.1.3 $\frac{1}{2}$.1 $\frac{1}{2}$.	2.3.1.1.1.1.1.	5.	31.
Butter	1.	1.	1.	1.	1.	1.	2 $\frac{1}{2}$.
Beer	4.	2 $\frac{1}{2}$.2.	2.4.	2.2.	4.	2.4.	28 $\frac{1}{2}$.
Pudding	1 $\frac{1}{4}$.	1.	1.	1.	1.	1.	7.
Rye	3.	3.	1 $\frac{1}{4}$.	3.2.3.	1.	1.	15 $\frac{3}{4}$.
Sugar	4.4.	4.4.	1 $\frac{1}{4}$.	1.	1.	1.	3.
Peas	1.	1.	1.	1.	1.	1.	2.
Beef	1.1 $\frac{1}{2}$.	1.	1.	1.	1.	1.	4 $\frac{1}{2}$.
Apple pye	1.	1.	1.	1.	1.	1.	1.
Meat-pye	1.	1 $\frac{1}{2}$.2.1 $\frac{1}{4}$.	1.	1.	1.	1.	7.
Veal	1.	1.	1.	1.	1.	1.	1 $\frac{3}{4}$.
Mutton	1.	1.	1.	1.	1.	1.	9 $\frac{1}{2}$.
Beer & water	6 $\frac{1}{2}$.	1.	1.1.	1 $\frac{1}{2}$.2.	1 $\frac{1}{2}$.	1 $\frac{1}{2}$.1.	6 $\frac{1}{2}$.
Fruit	1.	1.	1.	1.	1.	1.	4 $\frac{1}{4}$.
Broth	1.	1.	1.	1.	1.	1.	8.
Cheese	1.	1.	1.	1.	1.	1.	10.
Halfy-pudding	1.	1.	1.	1.	1.	1.	4.
Potatoes	1.	1.	1.	1.	1.	1.	1.
Salt during the fix days, lb.	1.	1.	1.	1.	1.	1.	1.

* On Friday, the bread taken at the third meal was ten ounces---I have put it 1-2 lb. in order to preserve uniformity.

Editor.

383 $\frac{1}{4}$ lbs

from the apartments of the dead, and from the places where the blood, drawn from the sick, had been deposited. Attempts were made, but in vain, to cure

Mr. Sebald of Ulm, has given an account of a great quantity of stones, found in the intestinal canal of a miller's horse. After a colic and obstinate obstruction of the belly, the horse died in 3 days. One hundred and thirty-four stones of different size and figure were found dispersed in the coecum and colon. The largest, lying in the coecum, was of the size of a middling bowl, polished, and of a dark colour. It however weighed only four pounds—and a common calculus of the same size would have weighed three times as much. The remaining stones together weighed lbs2. 9. 3. Mr. S. thinks there is no doubt but that the formation of these stones may be ascribed to the gravelly particles, rubbed from the grindstone and mixed with the bran he was fed with. Mr. S. has seen a stone of this kind of 7 pounds, and another of 13 pounds.*

this voracity, by giving him in turns fat bodies, acids, opium, and even *la coque du Levant*. The disappearance of a child sixteen months old having excited strong suspicions against him, he deserted: but in the year 6, he was admitted into the hospital of Versailles, in a state of consumption, which had succeeded this horrible appetite, and which, according to his own account, was occasioned by a silver fork that had remained in the intestinal canal.

“As he died soon after, C. Tussier, chief surgeon of that hospital, had the courage to open the body, notwithstanding the insupportable odour which it exhaled: but the fork was not found. The stomach was of an extraordinary size: the intestines, completely ulcerated, exhibited remarkable swellings; and the gall-bladder was of a very great capacity.

“Tarare was of a small stature, delicate and weak; his look had nothing in it savage. When young, the skin of his belly could almost be wrapped round his body, and after a full meal one might have almost believed him to be dropical: a thick vapour issued in torrents from his mouth, his whole body smoked, the sweat flowed in abundance from his head, and, like several of the most voracious animals, he fell asleep to digest.

“C. Percy terminated his memoir by explaining the internal organization of those wretches condemned by nature to experience this cruel and inordinate hunger; he explained the greater part of the phenomena they exhibit; and he concludes, from numerous instances of *polyphagia*, which he has collected, that the unfortunate persons subject to it, find, for the most part, an end to their torments by death, before they attain to the age of forty.”—TILLOCH.

The case is more extraordinary as related in the Bulletin des Sciences.

* In the collection of the American Philosophical Society is a large calculus taken from the duodenum of a horse, weighing 18 pounds.

1804. Diseases	April.	May.	June.	July.	August.	September.	October.	November.	Total.	Cured.	Died.	Relieved.	Removed.	Irregular.
Abortus						1			1	1				
Abcessus					1				8	6	1		1	
Ambustio	3			4	2		1		9	8				1
Amenorrhœa	2	1	3				1		9	8				
Anasarca			2	3	5	3	1	1	14	14				
Aneurisma Poplit.	3	1	1	3	1	1	1		11	9	1		1	
Anorexia							1		1	1				
Apoplexia		1	1	4		2			8	6				2
Ascites	1		1				1		3		3			
Asthma	2	2	2	2	1				9	6	3			
Blenorrhœa	1	1	1						3	1		2		
Cancer	1								1	1				
Caries	2				1				3	2	1			
Catarrhus									1	1				
Cephalalgia	11	3			2				16	16				
Cholera morbus	3	5	2	6	3	4	1		24	22				2
infant.	1	2	6	9	12	6			38	34	4			
Colica				8	4	2			14	8	6			
biliosa	2			12	1	3	4		27	27				
picton.		3	2						5	5				
Contusio			1						1	1				
Cyanache pharyng.	3	7	6	2	3	4	3		28	26	1			1
trachealis					1				1	1				
Dentitio	1			2	1				4	3	1			
Diarrhœa	2	1		1	1				5	5				
Dislocatio	2	5	10	31	25	13	4		90	84	4	2		
Dolores				1					1	1				
Dysenteria	2		4	3	6	3	3		21	5		16		
ymenorrhœa		1	1	2	10	12	10		36	28	5		3	
Dyspepsia	2	7	5	5	1		2		22	18		2		2
Elephantiasis	2	2	2	4					12	12				
Empyema			1						1	1				
Enteritis			1				2		1				1	
Epilepsia		1	1						2	1	1			
Epistaxis									2	1			1	
Eruptio			2						2	2				
Erysipelas	2	3	4	6	9	5	2		31	28			1	2
Essera							1		1	1				
Febricula					1				1	1				
Febris biliosa	1	3	6	4	15	5	4		38	36				2
bilios. malig.		4	2	3	7	4	3		23	20	3			
ephemera			2	1		1			4	3	1			
intermittens	1			2					3	3				
remittens	2	2	7	5	19	25			60	56			2	2
synocha			3	3	1	8	15		30	28	2			
typh. mit.	3	3	4		1				12	12				
Fractura		2					2		4	3	1			
Gestationis morbi	4	1		1	1				7	4		2		1
Gonorrhœa	2		2	3		1			8	6		2		
Gutta serena	3	4	4	8	6	3	4		32	31				1
	1								1					1
Carried forward	65	65	97	136	142	109	66		680	589	38	26	10	17

The results of this month unknown at the time of forming the table.

1804. Diseases.	April.	May	June.	July.	August.	September.	October.	November.	Total.	Cured.	Died	Relieved.	Removed.	Irregular
Brought forward	65	65	97	136	142	109	66		680	589	38	26	10	17
Hæmorrhoids			1						1	1				
Hepatitis	2	2	2			1			7	4	2		1	
Hæmoptysis	1				1	2	1		5	5				
Hernia humoralis		1					1		2	2				
Herpes			2						2	2				
Hydrocele	1	1							2	1			1	
Hydrocephalus			2						2		2			
Hydrothorax	1					1	1		3	1			1	
Hysteria	2	2	3	4			6		17	14	1	1	1	
Hysteritis						1	2		3	3				
Leucophlegmatia							1		1	1				
Leucorrhæa					3	3			6	4				2
Lumbago	1		1	4	3	2			11	11				
Mania							2		2		2			
Menorrhagia	2	5	2						9	9				
Nephritis	1								1			1		
Otalgia				2		3			5	5				
Ophthalmia	2	4	3	3	4	6	4		26	24			2	
Obstipatio	1	3	7	9	5	7	3		35	34		1		
Odontalgia	2	2	2	2		1			9	9				
Œdema			1				1		2	1			1	
Palpitatio			2			1			3	3				
Paralysis				2	2	1	1		6	4	1			1
Paraphymosis						1			1	1				
Paronychia						1	1		2	2				
Pertussis				3	6	2	4		15	15				
Parturitio diff.		3	4	2	1		2		12	12				
Phthisis	5	5	6	3	2	5	3		29	18	9		2	
Pleuritis	8	10	4	2	1	1	5		31	28	3			
Bilios.			4	2					6	4	2			
Pneumonia	1	3	2	4	10	5	3		28	26	1		1	
Podagra	1	1							2			2		
Prolapsus ani uteri				2					2	2				
Pfora	4	13		2	1		1		21	21				
Retentio Placentæ				2					2	2				
Rheumatismus	8	5	15	12	4	10	6		60	54		5		1
Scrophula	1		1						2			2		
Sarcocele		1							1					1
Scarlatina angin.			1						1	1				
Sciatica	1		1			1			3	1		2		
Tenesmus	1			5		2			8	8				
Tinea capitis			2			2			4	4				
Variola	1	5	14	2	7	3	12		44	33	11			
inferta	1	3					11		15	15				
Vaccina *	40	20	20	30	3	6			119	36				
Vermes	10	8	8	9	5	10	6		56	50	2			4
Vertigo	2		4						6	4		2		
Vulnus	2	3	2		3	3	1		14	12				2
Ulcus	3	3	5	7	4	5	6		33	29	3			1
Urticaria			2						2	2				
	17	17	218	247	208	96	150		1361	1107	78	44	20	29

The results of this month unknown at the time of forming the table.

Abstract of Meteorological Observations for 1804.

Months in divisions.	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.
	Highst.	Lowest.	Mean of division.	Mean of month	High- est dec.	Least. in dec.	Mean of div dec.	Mean of mo. In dec.		
January.	1	45	28	36.9	29.90	29.40	29.73	29.81	NW NE W	Clear 5.8 Cloudy 4.2 — Rain, &c. 14
	2	41	24	34.2	30.13	29.35	29.70			
	3	35	24	29.8	30.05	29.38	29.73			
	4	37	22	28.3	30.08	29.50	29.83			
	5	27	14	21.1	30.23	29.60	30.01			
	6	36	16	27.4	30.33	29.50	29.88			
February.	1	44	28	34.2	30.00	29.60	29.89	29.90	NW SW NE W	Clear 6.8 Cloudy 2.6 — Rain, &c. 7
	2	43	27	34.4	30.15	29.50	29.90			
	3	46	26	35.0	30.45	29.90	30.08			
	4	45	28	37.2	30.20	29.65	29.96			
	5	47	15	30.2	30.03	29.60	29.71			
	6	39	26	33.5	30.05	29.65	29.86			
March.	1	36	19	28.8	29.90	29.40	29.54	29.59	NW NE SW	Cloudy 5.4 Clear 5.2 — Rain, &c. 6
	2	46	22	35.6	29.80	29.47	29.64			
	3	45	35	39.9	29.95	29.50	29.72			
	4	46	27	36.4	30.15	29.80	29.92			
	5	55	38	46.5	29.85	29.43	29.61			
	6	56	32	45.4	29.80	29.40	29.66			
April.	1	48	31	40.2	29.95	29.77	29.89	29.86	NW SW NE	Cloudy 5.4 Clear 5.2 — Rain, &c. 7
	2	57	42	48.4	29.70	29.50	29.59			
	3	66	43	53.2	9.80	29.53	29.60			
	4	70	46	53.9	30.23	29.57	29.89			
	5	63	47	54.5	30.25	29.30	30.00			
	6	66	45	55.7	30.25	30.10	30.20			
May.	1	76	51	63.2	30.45	30.00	30.27	30.05	SW NE SE NW	Cloudy 5.8 Clear 4.8 — Rain &c. 9
	2	76	58	67.3	30.25	29.87	30.10			
	3	66	54	60.3	30.10	29.85	29.95			
	4	75	50	61.0	30.05	29.87	29.96			
	5	78	58	67.0	30.10	29.82	29.95			
	6	76	56	64.0	30.22	29.87	30.10			
June.	1	78	66	69.7	30.00	29.82	29.91	29.98	NE NW SW	Cloudy 6.8 Clear 4. — Rain, &c. 16
	2	81	66	73.4	30.20	29.90	30.04			
	3	81	61	67.3	30.40	29.97	30.17			
	4	78	66	70.9	30.42	29.87	30.10			
	5	74	65	68.9	29.88	29.77	29.80			
	6	77	65	71.6	29.90	29.82	29.87			

January 23. Snow a foot deep.

August 20. Thermometer at noon 103° on the grass. 106° against a wall exposed to the sun's rays.

November, 12. Ice in the gutters the first time.—14th, first snow.

December, 18. Navigation obstructed.—20th, thermometer in some situations 9°.

27th, Navigation free.

Abstract of Meteorological Observations for 1804.

Months in divisions.	THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.
	Highst.	Lowest.	Mean of division.	Mean of month.	High- est.	Least.	Mean of div.	Mean of mo. In. dec.		
1	83	67	74.4	76.9	30.25	29.80	30.04	30.06	SW NW NE	Clear 8.
2	88	76	82.4		30.09	29.96	30.03			Cloudy 3.
3	85	74	78.3		30.15	29.90	30.02			—
4	86	67	76.0		30.23	29.70	29.98			Rain, &c.
5	77	65	72.0		30.25	29.70	30.05			7
6	89	69	78.5		30.32	30.10	30.24			
1	85	70	76.2	76.5	30.33	30.13	30.21	30.20	NE SW SE NW	Cloudy 8.6
2	82	70	75.0		30.22	30.01	30.12			Clear 8.
3	86	74	75.5		30.38	30.16	30.30			—
4	92	74	79.9		30.35	30.08	30.22			Rain, &c.
5	88	72	77.4		30.25	29.97	30.11			10
6	88	69	75.4		30.48	30.16	30.28			
1	92	74	82.0	72.8	30.48	30.10	30.24	30.20	NW SE SW NE	Clear 5.
2	88	72	80.1		30.46	30.15	30.29			Cloudy 3.3
3	86	70	76.6		30.40	30.09	30.09			—
4	90	58	72.8		30.40	29.95	30.17			Rain, &c.
5	69	58	61.8		30.49	30.15	30.30			11
6	74	53	64.0		30.30	30.04	30.13			
1	71	46	59.4	57.3	30.52	30.06	30.35	30.20	NW SW NE	Clear 4.
2	63	49	57.4		30.11	29.55	29.93			Cloudy 2.
3	64	50	56.9		30.67	30.09	30.29			—
4	68	50	58.2		30.26	30.00	30.15			Rain, &c.
5	66	49	58.4		30.55	30.05	30.31			10
6	65	45	54.0		30.50	29.82	30.20			
1	66	42	53.0	46.9	30.52	30.18	30.34	30.23	NW SW NE	Clear 11.8
2	58	44	48.1		30.40	29.60	30.11			Cloudy 5.
3	49	33	40.5		30.54	29.65	30.08			—
4	49	33	39.0		30.40	30.03	30.25			Rain, &c.
5	55	41	46.9		30.57	30.24	30.34			6
6	65	43	54.0		30.52	30.01	30.31			
1	56	33	41.0	32.6	30.15	29.60	29.84	30.10	NW NE SW	Clear 4.6
2	47	27	36.2		30.40	29.89	30.17			Cloudy 3.1
3	36	21	29.2		30.70	29.70	30.36			—
4	37	13	25.0		30.74	29.54	30.32			Rain, &c.
5	37	26	31.7		30.35	29.70	30.06			13
6	40	23	32.8		30.30	29.25	29.85			

Range of thermometer during the year,
Mean height of thermometer for the year,
Range of Barometer during the year,
Mean height of barometer for the year,
Rain for the last 6 months of the year,
Greatest quantity of rain in one month (July,)
Least (November,)

Degrees 79.
54.48
Inches 1.49
30.04
19 1-8
6 3-8
1 2-8

A brief and convenient Method of preparing Emetic Tartar. By
Mr. BUCHHOLZ, Apothecary at Erfult.

THE glass of antimony and purified chrystals of tartar finely pulverised, are to be mixed together with distilled water to the consistence of honey, which being suffered to stand two or three weeks in a warm place, and stirred several times a day, will be easily dissolved by boiling water, with the exception of a few grains of gravelly particles, and a considerable quantity of a substance similar to Kermes mineral. Mr. B. found by experiment, that for thoroughly saturating the whole quantity of purified tartar employed for the operation, the proportion of *one* part and a *half* of the glass of antimony, is required to *two* of chrystals of tartar; and from three and a quarter ounces of this mixture, he obtained, according to his experiments, two ounces and three drachms of chrySTALLIZED emetic tartar: the Kermes mineral, remaining from 12 drachms of glass of antimony, amounted to about one drachm and a half. At a temperature of 10 to 12° Reaumur, fourteen and two-third parts of distilled water dissolved one part of emetic tartar, according to his experiments, which differs greatly from the common opinion, viz. that 80 parts of water are requisite for one part of emetic tartar.

At 80° Reaum. 100 parts of distilled water dissolved 53 parts of chrySTALLIZED emetic tartar.

Pure emetic tartar ought to be quite white, as any admixture of yellowish colour proves its being impregnated with iron.

Medical & Physical Journal.

The artificial musk has been found by Dr. Hufeland, of eminent service in all kinds of nervous diseases, as well as in the whooping cough. As it is of a waxy and resinous consistence, it is most conveniently administered in the form of emulsion, made by triturating ten or twelve grains in a mortar with a few

almonds, and diluted with 5 or 6 ounces of water.* Of this, two tea-spoonfuls are given every two hours, to a child from one to two years of age, and in a rising proportion to older children. It generally produced a sudorific effect, while it obviously diminished and alleviated the fits of coughing—an eruption not unfrequently attended, in many instances assuming the form of the true nettle rash; and by this favourable crisis, soon terminated the disease.

Mr. Bartley, surgeon at Bradford, confirms the efficacy of the artificial musk in whooping cough, and in several other complaints. His mode of giving it is in the form of a tincture, prepared by dissolving 2 drachms of the resinous extract above-mentioned, in 8 ounces of alcohol: two cases of its efficacy are recorded, and he is of opinion, that in this complaint it stands unrivalled.

The same gentleman states a case of diabetes mellitus, in which its efficacy was very extraordinary, after other means had failed of success.

Dr. Bellamy of Preston, in the 8th Vol. of the Medical and Physical Journal, p. 41, gives a remarkable instance of the efficacy of the artificial musk, as recommended by Professor Hufeland, in the cure of the whooping cough. The patient was not benefitted by the remedies in common use; “the cough returning, or rather increasing, with greater violence than ever,

* The mode of preparing the artificial musk is thus related in the 1st vol. of the Medical and Physical Journal, p. 181.

“Three drachms and a half of concentrated nitric acid are gradually dropped on one drachm of rectified oil of amber, which is previously poured into a wine glass. When this mixture is agitated, it grows hot and emits offensive fumes, against the inhalation of which the operator must be on his guard. After having stood 24 hours, the compound acquires a resinous appearance; at the bottom of it we find a strongly acid fluid, but on the top of it, a yellow resin, resembling musk in its fragrance. This resinous matter must be repeatedly washed, first in cold, and then in hot water, until the acid taste be completely removed. Thus we obtain a substance which is equal in flavour as well as in its medicinal properties, to the genuine natural musk, which is perfectly soluble in spirit of wine, which, like other resins, can be precipitated by water, and which always retains the scent acquired by this simple chemical process.”

the child whilst in the fit bringing up blood by the mouth, and waiting in flesh and strength rapidly." Three drops were given twice a-day, and gradually increased to six drops three times a-day. "The relief obtained was really sudden and surprising; indeed, the proportion of benefit was greatest in the first 24 hours; the disease then abated, and the child was positively well of the cough in ten days. Its health and spirits returned as that went off, and in about a month were quite re-established," and continued so at the time of his communication.

Professor Thomanis of Wurtzburg recommends the use of powdered charcoal in the tinea capitis, as a topical application; "and which," says the Editor of the Medical and Chirurgical Review, "according to the testimony here adduced, may be regarded as one of the most efficacious remedies we possess against tinea capitis. The following case will serve to illustrate the author's practice."

"Barbara Metz, thirteen years of age, had been supported from infancy by charity, and consequently had been greatly neglected in respect of cleanliness. Although she had gone through the ordinary diseases of infancy without danger, she continued pale, cachectic, and diminutive in size, and had in fact suffered all the privations of a state of poverty. She was admitted into the Clinical Institute on the first of February, without any other disease than the marks of general weakness, and a tinea which covered her whole head. The integuments were eroded by a multitude of small ulcerations, which discharged an ichorous humour, so fetid as to be scarcely bearable. The hair glued together formed masses, under which were lodged an incredible number of vermin, producing altogether a horrible appearance.

"A consideration of all the circumstances led to the determination of treating the disease in merely a local manner. The hair was cut off as closely as possible, and towards evening the ulcerated parts were covered with powder of charcoal, covering the

whole with a proper bandage. The following morning the parts were washed with warm soap and water, and the charcoal was renewed daily, night and morning. Within the space of three days, the fetid odour of the ulcers had entirely disappeared, good pus was formed, and a tendency to heal was manifest. On the fifth day, the ulcers were all cicatrized, and the integuments assumed a natural and healthy appearance: there was neither tumefaction nor induration visible. The patient now quitted the Institute, and it was ascertained that no relapse took place afterwards. Several other cases of the same disorder are mentioned, in which the charcoal powder proved equally efficacious."

Med. & Chirurg. Review.

From a report lately made by the committee of the hospital, (Small-pox hospital, London,) it appears that 13,715 persons have been inoculated for the vaccine disease by the officers of the institution since January 1799. Of these, 2,500 have been subjected to the variolous inoculation, without small-pox being produced in a single instance: nor is it known that any one of the whole has since been attacked with the latter disease. The variolous inoculation has been so far superseded by the vaccine, that only ten persons have been inoculated for small-pox during the last six months. *Ibid.*

Dr. Sacco of Milan, whose experiments in proof of the vaccine disease originating in the *grease* of horses we had lately occasion to notice, makes some additional observations on the subject which merit attention, as tending to throw light on the nature of morbid poisons in general.

"Hitherto," he remarks, "I have not found any quadruped which may not be infected, more or less readily, by the vaccine

virus or by the equine. The virus reproduced in these animals, and introduced into the human species, has also presented the same results, as well on the horse as on the dog, the cat, sheep, goats, pigs, calves, and from each of these on man. It appears to me certain that dogs are preserved by it from the *distemper* peculiar to these animals; as likewise there is every appearance that horses are by the same means from the *strangles*. I have had already several examples of this, but sufficient time has not yet elapsed to enable me to affirm it positively. I have endeavoured moreover to vaccinate birds, but it is very difficult to communicate the disease to them; however, with certain precautions in the inoculation, it may be done." *Ibid.*

Dr. Sacco of Milan, has lately sent M. de Carro, of Vienna, a glass tube containing matter taken immediately from the heels of a horse, and another tube with matter from the same origin, but which had passed through the medium of the human body. The former was in a gelatinous state; the latter perfectly liquid. Both of them produced the vaccine in the most regular way.

It has been generally believed, that the vaccine crust or scab did not possess the faculty of producing the true vaccine pustule, and a difference has been attempted to be set up between the small-pox and the vaccine in this respect. Mr. Bryce, of Edinburgh, made some experiments, which prove that the scab, reduced to powder and moistened with water, produces the vaccine as readily as the most limpid matter. A physician of Vienna, Dr. Uberlacher, has repeated these experiments with success. This fact appears to be of great importance in practice, by the facility which it furnishes of preserving vaccine matter for a length of time in the form of scab, and of thus conveying it to great distances. *Ibid.*

It appears by late accounts from Constantinople, that M. Valli (whom we mentioned in a former number of our Review as having inoculated himself with a mixture of variolous and pestilential virus, and who had exposed himself in various ways to the infection of plague without effect) had recently contracted the plague; but that the symptoms were less intense than common, and that he escaped with the formation of an abscess in the leg. A great number of persons, it is added, at Constantinople had been vaccinated, with the intention of preserving themselves from the plague. *Ibid.*

The late supposed failures of vaccination as a preventative of small-pox, and which have become so numerous as to have excited very general alarm in the minds of the friends of the new practice, render every attempt to ascertain the precise laws of the vaccine poison a very important matter. This consideration has probably been the inducement to the respectable promulgator of the vaccine inoculation, to offer some interesting observations on the subject through the medium of the *Physical Journal*.

Dr. Jenner observes, that those herpetic eruptions which so frequently appear among the children of the poor, and which, he thinks, are evidently contagious, often prevent the vaccine virus from producing its correct action. The skin, although it be apparently sound at the point of insertion, is nevertheless so influenced by the disease, as to baffle all our endeavours to produce a correct pustule, and consequently to secure the constitution from the contagion of the small pox. Sometimes, however, the true vaccine pustule (Dr. J. still uses this term, though he admits its impropriety) takes place in these cases, and proves a cure of the herpetic disorder, particularly when this has been of considerable duration. The *spurious* pustule produced from the cause mentioned above generally arrives at maturity, and finishes

its progress much within the ordinary period of the true. It commences with a troublesome itching, and throws out a premature efflorescence, sometimes extensive, but seldom circumscribed, or of so vivid a hue as the other: it resembles more a common festering of the skin. The colour of the pustule is yellow, and its contents opaque.

Dr. J. says, that he has abundant testimony to prove, that the fluid taken from a *spurious* vaccine pustule thus excited, is capable of propagating and perpetuating its like; as in the matter of the true vaccine pock, if taken at too late a period. In such cases, the cutaneous disease should be removed, and inoculation re-instituted, when the true vaccine pustule will take place. Dr. J. thinks it probable, that the herpetic condition of the skin at the time of inoculation has been the chief source of the failures which many practitioners have witnessed in inoculating for the small-pox.

Ibid.

In the report of the Vaccine Pock Institution, we have an account of a case, in which no sign of infection having taken place, appeared till five weeks after the insertion of the vaccine virus.—Mr. Ring gives us another more remarkable instance of the tardy appearance of the pock, in the 11th vol. of the Medical and Physical Journal.

“I have” says he “lately met with a case, which is, perhaps, unparalleled in the annals of inoculation; in which the sign of infection did not appear till the 46th day. A very small, but genuine, vaccine vesicle then took place. The child has since been inoculated repeatedly with the most active matter, but to no purpose.”

We have in the same volume a case related by Mr. John Morgan, Surgeon, of the efficacy of vaccination in a child of 7 months, after 5 days exposure to the small-pox in her mother,

who had taken it in the natural way. The child had the vaccine very favourably, and continued during the whole time to suck its mother, without inconvenience. On the 9th day, when the mother was still ill of the small-pox, the infant was perfectly well.

I have lately succeeded in exciting the vaccine on the arm of a child, by the *eighteenth* attempt. In two or three of the previous trials, a spurious affection was produced. *Editor.*

The following communication is recommended to the particular attention of apothecaries; as containing some facts highly worthy of their notice.

Report read before the Society of Apothecaries, of Paris: on a Memoir of Cit. Dubuc the elder. By Cit. Després, Bouriat, and Boullay.

(From Annales de Chymie, No. 136, an. xi.)

The society having charged the above gentlemen to examine a pharmaceutic memoir addressed to them by M. Dubuc, apothecary at Rouen, the following is the substance of their report.

‘The author, M. Dubuc, commences by announcing the objects he had in view; which were to demonstrate, 1st, that it is essential to fix in a dispensatory the aerometrical degree of the alcohol directed for extracting the resinous and extractive principles of vegetables: 2d, that it is wrong to use the term *rectified spirit of wine*, or simply *spirit of wine*, under which denomination one practitioner employs a spirit of 18 degrees of strength, another of 32°, 36°, or 38°.

‘His experiments relate to five substances, all of them important articles of the materia medica; viz. jalap, aloes, ipec-

cuanha, cinchona, and squill. The agent he employed was alkohol, thus graduated :

38°——32°——26°——20°.

which he numbers thus,

1——2——3——4

‘ 1. JALAP. All the tinctures obtained from this substance by the different menstrua as above, by the aid of maceration, turn more or less milky, he observes, on the addition of water.

‘ Four drachms of each of them, containing the principles extracted from half a drachm of the jalap, being evaporated with necessary precaution, gave a residuum as follows :

No. 1, gave 6 grains of pure resin.

No. 2, —— 5 grains of resin and 1 grain of gum.

No. 3, —— 8 grains of extract, nearly half which was gum.

No. 4, —— 7 grains, four of which were gum.

‘ Hence M. Dubuc concludes, that in order to prepare the resin of jalap, and also a tincture as drastic as possible, it is necessary to employ alkohol of 36° of strength. A tincture thus prepared might be denominated the *alkoholic resinous tincture of jalap*. He adds, that a resino-gummosé tincture might be kept in the shops, prepared with No. 3, which would be less active, and fitted for making the *vinum jalapii*.

‘ 2. ALOES. Before submitting this drug to the action of the graduated alkohols, M. Dubuc tried it with cold water. An ounce and a half of this liquid was infused in two successive portions on 2 drachms of succotrine aloes : it dissolved 60 grains of extractive matter, of an insupportable degree of bitterness ; the remainder within 8 or 10 grains, was dissolved in alkohol of 36°, and furnished, by evaporation, a resin much less bitter than the extractive matter.

‘ Knowing the proportions in which the extractive matter and the resin exist in the alkohol, M. Dubuc had recourse to the different menstrua above stated : No. 1 took up a drachm and half, half resin, half extract. No. 2 took up 4 scruples, 36 grains of which were resin. No. 3, a drachm, a scruple of

which was resin. No. 4 also a drachm, of which 10 grains were resinous.

‘ From these experiments the author advises the preparation of two spirituous tinctures of this drug to be kept in the shops; the first made with the aloes in gross substance, and with alcohol of from 36 to 38 degrees; to be called the *alkoholic tincture*; the second, with alcohol of the same degree of strength, but with the aloes deprived of its extractive matter by means of water. This might be termed the *alkoholic resinous tincture* of aloes.

‘ 3. IPECACUANHA. M. Dubuc treats of the choice of this root, the precautions necessary in its pulverization, and the method of preserving the powder unchanged; which consists in keeping it in small and well closed bottles. He then examines its habitudes with the different alcohols, in the proportion of a drachm to each ounce of the liquid: in these trials, No. 1 gave, by infusion and evaporation, 9 grains of pure resin. No. 2, — 10 grains, of which 8 were resinous, and two gummy. No. 3, — 12 grains, of which 5 were resinous, the rest gummy. No. 4, — 14 grains, 5 of which were resin, and 9 gum.

‘ This last tincture not turning milky, like the others, on the addition of water, and appearing to contain the principal virtues of the root, the author judges it a proper one to be administered in the form of draughts; he recommends it also for making the *vinum ipecacuanhæ*, and for the preparation of a syrup. For the latter, he recommends the following formula.

Ipecacuanhæ contusæ - - - - - oz. ii.

Aquæ bullientis - - - - - oz. xx.

Post infusionem per horas 24, cola. Hujus liquoris, libram unam; sacchari albi, libras duas. Liqueantur simul leni calore, addendo dum frigescat solutio, tincturæ alcoholicæ supradictæ uncias quatuor.

‘ Each ounce of this syrup will contain nearly two grains of resin, and about seven grains of the gummy principle of the drug.

‘4. *CINCHONA rubra et grisea*. An ounce of each of the graduated alcohols above mentioned, in which a drachm of the red bark had been infused, gave as follows :

No. 1,—8 grains of resin, and 1 grain of extractive matter.

No. 2,—7 grains of resin, and 3 of extract.

No. 3,—6 grains of each.

No. 4,—the same.

‘From these products, M. Dubuc offers receipts for two alcoholic tinctures of this bark; observing that he gives the preference to that made with the weakest alcohol, and which he deems the most proper for preparing a *vinum cinchonæ*. He does not, however, propose its entering into the composition of a syrup, as it would render it turbid.

‘From having found that the cinchona, though exhausted as much as possible by repeated affusions of cold water, still gave a portion of resin when dried and infused in alcohol of 38°, he concludes, that M. Baumé was deceived in supposing, that cold water would dissolve all the resin, the gum, and the extractive matter of this drug, and that therefore maceration was preferable to decoction for the preparation of the extract. M. Dubuc distinguishes two extracts of this bark, one prepared by strong decoction, which contains, according to him, all the active principles, and therefore probably, all the medicinal virtues of the cinchona when taken in substance. The other, prepared by the action of warm water on the cinchona, after it has been deprived of its resinous part by alcohol.

‘5. *SQUILL*. The author next examined the tinctures of this drug, as made with the four sorts of alcohol above described, in the proportions of one drachm of the dried squill to an ounce of the liquid. Four drachms of each of these tinctures, when evaporated, gave as follows :

No. 1, gave 8 grains of solid matters, 3 of which were resin, and 5 extractive matter.

No. 2,—9 grains, 3 resinous, and 6 extractive.

No. 3,—12 grains, of which two were resin, 2 gum, and 8 extractive matter.

No. 4,—14 grains, with the same quantity as the last of gum and resin, and with 10 grains of extractive matter.

‘The last tincture appeared to be the most fully impregnated with the different principles of the squill; and from this the author advises the *vinum scilliticum* to be prepared, and also an extract by evaporation: it is likewise well fitted, he thinks, for mixing with the *mel scilliticum*, a new formula for which is given.

In their account of the memoir of M. Dubuc, the reporters observe, that they have repeated the experiments related by the author, and have found them in general exact. They agree with him, that it is necessary to fix precisely the degree of strength of the alcohol employed in medicinal preparations, and to banish from use the vague terms, *spirit of wine* and *rectified spirit*. They recommend the prosecution of similar experiments, in order to ascertain, with accuracy, the quantity of resinous, gummy, and extractive matters, capable of being drawn, by alcohol of different degrees of strength, from the various ingredients of the simple and compound tinctures of the shops. They observe farther, that, in the present state of our knowledge, it might be sufficient to employ, in the formation of tinctures, alcohol of two different degrees of concentration: one of from 18° to 20°, for roots, stalks, barks, gum-resins, extractive juices, &c.; since it has been demonstrated that in this state it takes up the utmost possible of their principles; the other of from 36° to 30°, for pure resins, the natural balsams, &c.

Instead of the syrup of ipecacuanha above described, the reporters recommend a more simple one, made with an infusion of six pounds of cold water, in three successive portions, on as many ounces of ipecacuanha in fine powder. An ounce of syrup thus prepared will be equivalent to 12 grains of the powder taken in infusion.

It was suggested by some, that the weaker alcohol was preferable for obtaining the resin of jalap, provided care was

taken to wash with water the resin thus obtained. To ascertain this point, the following experiments were made.

Eight ounces of jalap in coarse powder, were digested in four pounds of alkohol of 36° , and marked No. 1.

A similar mixture was made, and a sufficient quantity of distilled water added, to reduce the alkohol to 20° of strength. This was marked No. 2.

At the end of four days, the tincture No. 1 was much less coloured than No. 2, which had become of a deep brown hue. They were both filtered, and to each was added of distilled water double the weight of the alkohol employed.

The deposit in No. 2 was more abundant, and darker coloured than in the other, and settled more quickly to the bottom of the vessel. The two liquids were then evaporated to dryness. The dried product of No. 1 was a brown, very transparent matter, and weighed an ounce and a half; that of No. 2 weighed 2 ounces, 2 drachms, and 48 grains. This last was then repeatedly washed with distilled water, which it tinged in colour, and was reduced by this means to 9 drachms 24 grains of pure desiccated resin. This proves clearly, that diluted alkohol extracts a product more considerable in appearance than the highly concentrated spirit; but that this excess in quantity is at the expense of its purity. *Med. & Chirurg. Rev.*

Dr. Henderson of Edinburgh, in a letter to the editor of Nicholson's Journal, dated April 1804, relates a number of experiments, which seem to prove decisively that a portion of the azotic gas of the atmosphere is absorbed by the lungs, or at least disappears during respiration

The method of proceeding was briefly as follows. After having ascertained the purity of the atmospherical air by means of the eudiometer invented by Dr. Hope, and knowing the exact bulk of the air contained in the gasometer, the total quan-

tities of oxygen and nitrogen in it were calculated by a very simple process. This air was then respired, and its diminution marked. After respiration, a portion of it was introduced into the eudiometer, and its carbonic acid absorbed by means of lime-water. Freed from the carbonic acid, the air was now subjected to the action of the fulphuret of lime, and the relative quantity of nitrogen in it was discovered by the absorption of oxygen which had taken place. Then, by deducting the quantity of carbonic acid, and of oxygen gas, contained in the air of respiration, from the total quantity that remained after respiration, the proportion of nitrogen was obtained, which abstracted from the total quantity before respiration, gave the proportion of nitrogen absorbed.

Exp. 1. 600 cubic inches of atmospherical air were respired, for 4 min. at the temperature of 63° F. The quantity of nitrogen that disappeared in the experiment was found to be 17.7 cubic inches.

Exp. 2. The result in this case was, that 12 cubic inches of nitrogen disappeared after respiring the same quantity of atmospherical air at 64° F. for 4 minutes.

Exp. 3. 1000 cubic inches of atmospherical air were respired for the space of $4\frac{1}{2}$ min. at the temperature of 57° . The quantity of nitrogen absorbed was 15.1 cubic inches.

These experiments were confirmed by many others. The amount of nitrogen absorbed, however, is somewhat less than in the experiments of Mr. Davy, on the same subject, who makes it equal to 5 cubic inches per minute. But this difference may be accounted for, Dr. Henderson thinks, from Mr. Davy having given the result of the changes produced on the air by a single respiration, or by a small number of respirations; whilst, in his own experiments, a large portion of air was breathed for a considerable length of time, till it was no longer fit for the purpose of respiration.

Ibid.

The within account of the exhibition of a metal, which, we believe, has never before been administered, is only intended to

excite practitioners to farther trials of this and other hitherto untried metals, and to shew that at least it (the oxide of cobalt) may be given, without any bad effects, in the doses mentioned.

We cannot avoid repeating a remark formerly made, that, considering the efficacy of arsenic, iron, mercury, lead, tin, copper, silver, antimony, and even bismuth, it is astonishing that the effects of at least a dozen other metals should not yet have been ascertained, and that they should have scarcely once been exhibited.

“In a case of chronic rheumatism, I administered ten grains of oxide* of cobalt twice a day for three days, without any sensible effect. After an interval of four days, I gave, as before; two doses daily, till six were taken, which producing no observable change, the oxide was exhibited in the quantity of twenty grains at a time, twice a day, for six times, with the effect of only exciting sickness.

“In a second case, of either syphilitic or rheumatic pains, ten grains of the oxide of cobalt were administered twice a day, till sixteen doses were taken, without any effect but a little nausea.

“In a third case, of itching eruption, ten grains of the oxide were prescribed twice a day, for four doses, which proved laxative, and gave relief.

“In a fourth case, three grains of the oxide of cobalt were given for a dose, without any sensible effect, to a patient ill of a pulmonary consumption.”

Ibid.

The following interesting experiment, we are assured, was lately instituted at the Veterinary College by Mr. Coleman, the professor, with a view to determine whether or not the glanders, a well known disease in horses, can be cured by letting out the

* * The oxide was prepared by precipitating it from muriate of cobalt by sub-carbonate of potash. (*Kali preparatum, Lond. Pb.*)

blood of the diseased animal, and transfusing in place of it the blood of one in health.

The carotid artery of the sound horse was opened, and one end of the ureter of a horse was fixed into it, while the other end was introduced into the jugular vein of the diseased horse. There was a stop-cock fixed in the ureter, to regulate the quantity of blood transfused. In this way it was estimated, that ten gallons of healthy fluid were transfused, and above five gallons of blood were let off at the same time from the glandered horse.

The glandered horse died four days after he had received the transfused blood, and the other horse also died from the quantity of blood lost.

Mr. Coleman has proved that he can produce the glanders, by transfusion of blood, in both the horse and the ass. *Ibid.*

“We have been requested, in a letter from Mr. Heron, to inform the public, that *potatoes sweetened by frost*, if sliced down, subjected to squeezing in the press, exposed (the juice which has been expressed) to a simmering—or even a stronger heat, in mixture with pulverised charcoal, strained through a cloth, again exposed to heat with fresh charcoal, again strained, and then further refined in the same manner as sugar; will afford a considerable produce of that commodity in a state of sufficient purity.”

Historical Mag.

M. Funcke, a German apothecary, gives the following as a more economical, expeditious, and easy process for preparing Phosphate of Soda, than any in use:

Saturate the excess of lime contained in calcined bones with dilute sulphuric acid, and dissolve the remaining phosphate of lime in nitric acid. To this solution add a like quantity of sulphate of soda, and then recover the nitric acid by distillation. The phosphate of soda is then to be separated from the sulphate of lime by affusion with water and crystallization in the usual manner.

Universal Magazine.

The following valuable extract from a Paris paper, (the Gazette Nationale ou le Moniteur Universel, for Oct. 4, 1804,) will doubtless be read with the highest satisfaction by the friends of vaccination throughout America, as an ample proof, in addition to former testimonials, of the security obtained by that practice against the small-pox.

“ His excellency the Minister of the Interior, has communicated to the central society of the vaccine established near him, the result of a counter-proof which, by the concurrence of circumstances accompanying it, ought to make an epoch in the history of vaccination.

“ Six black children, the first who were vaccinated in the Isle de la Reunion, (Isle de Bourbon) and whose infection afterwards served for more than 5000 other individuals, were embarked in the vessel, the Young Caroline, (infected with the small-pox) and carried to one of the Isles des Seychelles, where the vessel was obliged to perform quarantine. These six children remained three months on board, constantly placed in the focus of the infection; and pains were taken to make them live, eat, and sleep with the infected. They were also, during the quarantine, twice inoculated for the small-pox, each time with large incisions in both arms. It is stated by the register, daily kept, that these six children having slept under the bed-clothes of the persons having the small-pox, in contact with their pustules, eating and drinking out of the same utensils, having been twice inoculated from those, who afterwards fell victims to their disorder, *were preserved from all contagion, and continue at the present time in perfect health.*

“ This counter-proof is perhaps the strongest in the history of vaccination, from the particular circumstance, that these six children after reaching the place of quarantine, lived for 15 days in the midst of twenty blacks in the confluent small-pox, of whom six are dead; of twenty to twenty-five other blacks in the state of scabbing, desiccation and convalescence, seven of which number died before the vessel arrived; and all were con-

tained between decks of a small vessel, in a space of 8 feet by 10 or 12. This counter-proof merits a place in the immense collection of useful experiments made in Europe upon vaccination; it fulfils moreover, the important end proposed by government, and it confirms in the most unqualified manner the anti-variolic property, which the numerous trials made by the most distinguished physicians had attached to the new inoculation."

It is to be hoped that after reading the above, even the most sceptical will be convinced, and that stricter attention to the anomalies of the disease, will serve to explain the supposed cases of subsequent small-pox; and enable us to guard against their future recurrence.

Editor.

The society lately instituted at Lausanne, to exterminate the small-pox by vaccination, have publicly offered to pay 100 livres to any person who, after successfully undergoing vaccination under their care, shall take the small-pox. *Month. Mag.*

In the Historical Magazine, Vol. 2, p. 399, is the following curious information of the destruction of the polarity of the needle by garlick.

"As I found great pleasure in reading that part of your history of science, in the last number of your magazine, which treated of Magnetism, Electricity, and Chemistry, it caused me to renew an experiment, which I can venture to affirm is not at this time publicly known: it is the effect of garlick on the polarity of the needle. The experiment I made in the following manner:—Take a common rubbed needle, stick it in a quantity of garlick sufficient to cover it; let it remain in that situation two or three days, its polarity will be quite gone. If you think this circumstance worth your notice, it will be seen with pleasure by your constant reader.

X. Y. Z.

Oxford, Sept. 20.

The zincum vitriolatum combined with opium, is highly recommended by Mr. Elijah Impey of the Royal Navy, in dysentery, to obviate the extreme degree of atony and frequent discharge of fæces without pain, existing after the disease.

Medical & Physical Journal.

Whilst upon the subject of white vitriol, it may not be amiss to notice its use in agues.—Mr. Cuming of Romsey-Hants, considers it equally infallible, and more entitled to the epithet Specific—than the bark. In ships of war, he says he has often given it under every type of the disease, and never knew it fail. He mentions a case of a poor woman, who had suffered from a quotidian to such a degree, that her legs became œdematous, her countenance fallow and bloated; to such a cachectic state was she reduced, that she had the appearance of falling an easy prey to dropsy: her stomach was much weakened, and her digestive faculties consequently greatly impaired. By the use of the white vitriol she was cured.

After clearing the primæ viæ by means of an antimonial emetic—he gave two or three grains a day during the intervals of the fit, in this formula—℞ Pulv. zinci vitriol. gr. ij. vel. iij. Confer. rosæ. q. s. ft. bol. no. iij. Capt. æger. 1. 2da. vel 3tia. quaque hora, ut opus fuerit, et augeatur dosim gr. i. indies. He never had occasion to give more than five grains in the day.

Its use in the various receptacles for the sick, is adverted to, as enabling us to save large quantities of cinchona, and to appropriate the money expended for the purchase of this expensive drug, to the laudable purpose of supporting the patients strength, by allowing a sufficient quantity of ale, porter, wine. *Ibid.*

Mr. William Henry of Manchester recommends, from several years experience, the use of the crystallized acetite of zinc as

the best application in all cases of gonorrhœa, and brings forward the authorities of Dr. Ferriar and Mr. Gibson, as to its superiority over all other injections. For the purpose of an injection, eight or ten grains are dissolved in four or six ounces of water, or, what he considers as much better, in the same quantity of a thin mucilage of quince seeds, or of a decoction of linseed, or barley; increasing or diminishing it in strength, so as to excite a slight smarting.

The same remedy, in a smaller proportion, dissolved in rose-water, he recommends as an excellent eye-wash. It may also be exhibited internally in all cases in which the calcined zinc has hitherto been employed, and as he affirms, with more certain efficacy. In doses of from five to ten grains, it affords a safe emetic which operates speedily. For internal use, it should be that which has been prepared by the direct combination of the metal, or of its oxides, as a redundancy of acetite of lead may produce injury.

The following appears the easiest method of preparing it, from several given by Mr. Henry.

To a solution of white vitriol (sulphat of zinc) in six or eight times its weight of water, add a solution of acetite of lead in twice its weight of water, as long as any precipitation ensues, or a little longer, in order to ensure the complete decomposition of the white vitriol. Throw the whole upon a linen strainer and wash off the soluble part by repeated affusions of distilled water.---Evaporate and crystallize. *Ibid.*

The following mode of preparing an artificial peat, of dung and straw, by the German colonists on the Karamysk, is extracted from Professor Pallas's "Travels through Southern Russia."

"This invention was suggested to them by Frederic Rish, a native of the turfey island of Rugen, in the Baltic Sea, and now a colonist of Ust-Salikha. The colonists can spare their dung for that purpose, as the loose black soil requires only to be divided into fallows, to restore its fertility; and they have a super-

abundance of straw. The dung is gathered in heaps, and left to putrify during winter. After the first agricultural labours of the spring are finished, this compost is carried to the water side, placed several feet deep, on a dry spot, mixed with a proportionate quantity of straw, and then trampled upon by horses and oxen, till it form a compact mass. When it is half dried in the open air, it is cut like turf into square pieces, which are piled up till they are completely dried, and afterwards carried home, where they serve as a stock of fuel for the winter. This artificial turf has long been used by the Crim-Tartars; it burns with a flame not unlike sea-coal, and imparts excellent heat, particularly to stoves and ovens for baking. Its smoke, however, is offensive, and is with much difficulty excluded from the inner apartments. Five or six pieces of it are sufficient to heat an oven; and a few men, with several pair of horses or oxen, are able to prepare, in the course of a week, sufficient fuel for the whole winter. Without this expedient, most of the colonies would be reduced to the greatest distress for want of firing; inasmuch as they have most injudiciously cut down and destroyed the small quantity of wood, which they found on the lands at their first settling, without ever thinking of future exigencies. They would now be very willing to plant rows of the willow and poplar on their low grounds, if they could obtain permission to fetch slips of those trees from the islands of the Volga."

At an extraordinary meeting of the Philadelphia Medical Society held the 6th of February, the following gentlemen were elected officers for the ensuing year.

President—Dr. B. Rush.

V. Presidents—Dr. C. Wistar, Dr. B. S. Barton.

Corresponding }
Secretaries } Dr. J. Hutchinson, Dr. J. S. Dorsey.

Recording Secretary—Mr. T. Ewell.

Curators—Mr. J. Hand, Mr. S. Jackson.

Treasurer—Mr. J. Hartshorne.

Orator—Dr. J. Hutchinson.

It gives us great pleasure in being able to announce the increasing respectability of this institution. During the present session fifty-one new members have been added to the junior list, who, in conformity to the regulations of the society, each brought forward and defended a piece on some medical subject.

During the last session, the society impressed with a due sense of the great advantages it would be likely to derive from having a permanent place for their meetings, resolved, that one half of their annual funds, arising from the fees of admission and from fines, should be appropriated to the purchase of stock, as fund to carry into execution at some future day, so desirable a plan. Had this resolve been entered upon at an earlier period, there can be little doubt, that such a plan might, ere this, have been realized. Already, nearly 400 dollars have been thus invested; and with a hope that liberal assistance might be accorded them, by the numerous members of their institution throughout America, a resolution was passed on the 2d of February of the present year, to appoint three honorary members as a committee, with full power to solicit and receive donations for this purpose; with instructions to forward a circular letter to all the honorary members communicating the above resolution. The committee appointed, consists of Drs. J. S. Dorsey, J. Hutchinson, and J. R. Coxe; all of whom will gladly receive on behalf of the society, such assistance as their fellow-members may feel disposed to afford. There can be little doubt but that every member of the society must feel that interest in its welfare, which will urge them to aid it as much as is in their power; for, whatever will contribute to its respectability, must add to the honor which each one derives from being associated with it.

The Royal Medical Society of Edinburgh owes its present flourishing state entirely to the commendable exertions of its members, and by their aid, it has erected an extensive building for their meetings, and has acquired a library, and philosophical apparatus, of considerable magnitude, much to the honor of that respectable body, and to the individual interest of each of the resident members during their session.

Editor.

NEW PUBLICATIONS.

MEDICAL THESES, selected from among the Inaugural Dissertations, published and defended by the graduates in medicine of the University of Pennsylvania, &c. &c. By Charles Caldwell, M. D. Editor of the work.—Philadelphia—T. & W. Bradford, 1805. 8vo. pp. 395.

A work like the present has been long called for, from the increasing number and value of the yearly productions of the graduates in medicine in the United States. It serves to point out in a comprehensive manner, the improvements which take place in the science of physic; and must have a powerful influence on the minds of the students in their endeavours to perfect their dissertations, and thereby render them worthy of such an honorable distinction.

Although the present selection is a very valuable one, yet with deference to the editor, we should have been pleased to have seen the work more regularly taken up from an earlier period of our medical school, and pursued in the order in which the Theses were emitted from the press; as we should thereby have been gratified by noticing the progress of medical science in our universities to the present time. We must nevertheless consider ourselves much indebted to the editor, for bringing into one view such a collection of valuable information as is contained in the first volume of his annual labours; and we wish him success in his future selections.

In addition to twelve very valuable, and for the most part, experimental Theses, we have an important and interesting “experimental inquiry, respecting the vitality of the blood” by the editor, in three lectures, which he informs us “were included in a course of medical instruction, delivered last winter, in the Infirmary of the Philadelphia Alms-house.” We must consider the experiments here detailed, as conclusive of the question; which appears to be taken up in a much more extensive and philosophic manner, than we have elsewhere seen it.

In a “Preliminary discourse” of nearly eight pages, the general outline of the work, and the considerations which led to the undertaking, are offered to view.—After which follow the Theses in the order enumerated, viz.

PRELIMINARY DISCOURSE.

I. SEYBERT's Attempt to Disprove the Putrefaction of the Blood in Living Animals.

II. POTTER on the Medicinal Properties and Deleterious Qualities of Arsenic.

III. PRIOLEAU on the use of the Nitric and Oxygenated Muriatic Acids, in certain Diseases.

IV. HORSEFIELD on the Rhus Vernix, Rhus Radicans, and Rhus Glabrum, vulgarly called, Poison-ash, Poison-vine, and common Sumach.

V. COOPER on the Properties, Effects, and Medical uses, of the Datura Stramonium, or common Thorn-apple.

VI. MOORE on the use of Digitalis Purpurea, or Fox-glove, in certain Diseases.

VII. MAY on the Unity of Disease, as opposed to Nosology.

VIII. SMITH'S Attempt to prove, that certain Substances are conveyed, unchanged, into the Circulation.

IX. ROEBUCK's Experiments and Observations on the Bile.

X. YOUNG on the Principles of Nutrition, and the Digestive Process.

XI. WALKER's Experimental Inquiry into the similarity in virtue between the Cornus Florida and Sericea, and the Cinchona Officinalis; together with an inquiry into the modus operandi of astringent vegetables.

XII. MILLER on the Means of Lessening the Pains of Parturition.

XIII. CALDWELL's Experimental Inquiry respecting the Vitality of the Blood.

The editor does not mean to confine himself to a selection from the Theses of the University of Pennsylvania alone; nor will he exclude such valuable communications as he may be favoured with from correspondents, at home or abroad.

Dr. Caldwell is about to issue proposals for publishing by subscription, a translation of "A Treatise on Fractures, Luxations and other affections of the Bones, by P. J. Default, surgeon in chief to the Hotel-Dieu of Paris, wherein his opinions and practice, in such cases, are stated and exemplified; edited by Xavier Bichat, with plates."

The translation is now ready for the press; and is accompanied with notes, and an appendix containing several late improvements in surgery.

NOTICE TO CORRESPONDENTS.

Communications are received from Drs. Vaughan, Dewees, and others, which will appear in the next number.

ERRATA—At p. 206, transpose the words *Barometer* and *Thermometer*, to their respective places at the head of the table.

p. 249, l. 19. dele—*but*.

In Dr. Dewees communication, p. 270, for Dr. Osburn, read, wherever the name occurs, Dr. Osborn.

MEDICAL MUSEUM.

VOL. I.....No. IV.

DR. DRYSDALE'S *History of the Yellow Fever at Baltimore*, concluded from page 266.

LETTER IX.

LET us now, Sir, inquire from what source the late yellow fever could have arisen:—I doubt, however, whether I shall be able to determine any thing decisively on this subject. The disease did not become an object of attention, until several persons had been attacked with it at the same time. It was discovered on two places, remote from each other, to which it was confined: viz. *Bowley's wharf* in the town, and *Fell's Point*.

On *Bowley's wharf*, it appeared at a particular part, extending at first to three or four stores on each side of one of its corners. It became gradually more general, but the wharf was soon so much deserted, that it found no objects for its attack. About the end of September, I observed but five warehouses open out of five and thirty.

On the *Point*, a case was at first observed here and there, scattered through it; but *Biays's alley* soon became the chief seat of disease. From thence its principal course was directed eastward through—— street, and when it reached the north-west corner of—— and Bond street, it travelled up the latter a considerable distance, until it was arrested by a vacant space of fifteen or twenty yards; formed by a broad gate-way, and an un-

occupied store. It gradually advanced towards town, which was now seriously threatened with a participation of the wretched fate of the Point, when the occurrence of heavy frosts checked the progress of the disease.

Many cases occurred through the town; but they originated from communication either with Bowley's wharf or with the Point: to one of these two places the infection could be distinctly traced.

Whether was the disease imported, or did it originate from causes existing among ourselves? I shall endeavour to answer this question.

It is the opinion of the celebrated *Lind*, that the yellow fever does not always require the introduction of its specific contagion to give it existence. He ascribes it to marsh exhalations, as a remote cause, called into action by exercise, intemperance, &c. The marshes are influenced by season, as in the generation of intermittents, and common autumnal remittents. Hence, it was generated in Pensacola in 1765, and in Cadiz the preceding year, after a hot and dry summer. *Cleghorn* observes, that the tertian fever of Minorca, wore the form of the yellow fever, when Englishmen were its subjects. In general the natives of the West-Indies are affected with the common remittent, while foreigners, being exposed to the same causes, are attacked with the yellow fever. Even the natives themselves, after an absence for a year or two, in a colder climate, are as liable as any foreigner, to be attacked on their return with the last-named disease. Is not this circumstance more referable to a sameness of causes producing different grades of effect, according to the habit of body from climate, &c. than to any other cause, which the most fanciful hypothesis can supply?

The yellow fever, which appeared in New-York, in 1791, has been ascribed to causes existing in that city, from which it originally sprang. Its appearance in Philadelphia, in 1793, we will not adduce as an additional proof of a domestic source, because it still remains a subject of controversy. In what manner shall we account for the sporadic cases of the yellow fever

which occasionally occur in different places, if it can arise only from specific contagion imported from abroad? *Lind* informs us, that he has met with such instances even in England, as well characterised as the disease can be; and *Doctor Stewart* of this town, declared to me, that he has seen cases attended with the black vomit and yellow skin at West River, near Annapolis. In none of these instances can we have recourse to specific contagion to account for the occurrence of the disease. Are we not informed by *Hillary* and other authors, that the yellow fever frequently exists in the West Indies, without any evidence or suspicions of an infectious nature? Does not this inference naturally ensue, that it exists at such time independently of any specific contagion?

If we can repose confidence in the assertions of the most respectable authors, and believe their opinions to be the consequence of facts, we cannot deny, that the yellow fever has originated from the common source of intermittents and remit-tents, and does not therefore always require the introduction of specific contagion to give it birth. The late yellow fever, therefore, may have arisen from causes existing in Baltimore, and may be accounted for, without the aid of an imported origin.

But why was it confined to particular places—Bowley's wharf and Fell's Point? If it originated from some internal source, we must inquire for its first appearance, when its causes especially existed. Let us examine this question. The first cases of the disease on the Point were confined to houses, whose cellars were filled with stagnant putrid water; its effluvia were so envenomed, that if a fly came within its influence, it fell dead upon its surface. This was so notorious a truth, that it could not escape the observation of persons in the neighbourhood, who led me to witness the immense number of those dead insects floating on the surface of the putrid water.

On the 25th of August, I visited Bowley's wharf, to inquire into the probable causes of its diseased situation. None could be discovered, except the existence of black, putrid, and offensive

water, under the floors of those stores in which the sick resided. This water was from twelve to eighteen inches deep, for there were no cellars on the wharf. Almost all, who were first affected here, were persons, who had not long resided in the stores. They, who from long residence were inured to the factor of the place, resisted more forcibly its noxious powers. Other parts of the wharf, from which the water, as it collected, drained away into the docks, continued healthy. I believe, that I have remarked in a former letter, that the prevalence of a north-west wind for a short time was followed by the indisposition of several persons. The wind, as a gentleman who resided on the wharf, observed to me, blew the water out of the docks so much, as to expose the slime to the sun, which exhaled such offensive effluvia as to induce disease.

As to the vessels arriving from the West Indies, I could deduce nothing satisfactory from them. I could not discover, that any person, sick of the yellow fever, had arrived among us. The *Triumph* arrived about the last of June, with almost all her crew indisposed. I saw them immediately after their arrival, and Doctor *Coulter* attended the sick; yet nothing like the yellow fever appeared among them. They quickly recovered, and communicated no disease to others. Previously to this period, a schooner arrived from the West Indies, and lay at Bowley's wharf, having on board the clothes of the captain who had died on the passage. But from no circumstance did it appear, that he had died of yellow fever; nor was any other person on board ill from the time of the captain's death, to the expiration of a quarantine, which the vessel was ordered to ride. We may also observe, that that part of the wharf, at which this schooner was a short time moored, was not the first scene of sickness, nor was it at any period diseased. It is impossible to ascertain any means, by which the yellow fever could have been imported.

Can we not explain the circumstance formerly mentioned—that the town became more healthy while the Point became more diseased—on natural principles? The chief source of the

common autumnal fevers in this *town* is some useless docks and an extensive marsh, uncovered by the water, when the tide* is not very high. The sun exhales from these places, the cause of our intermitting and remitting fevers. But, during the autumn of 1794, the wind prevailed almost invariably from the S. and S. E. and thereby kept the docks filled with water and the marsh completely covered. The source of miasmata was thus removed and disease consequently became infrequent. *Dazilles*, you have remarked, in his treatise on the diseases of the negroes in the West Indies, makes a similar observation: the *rainy* season, he remarks, is most healthy at Cayenne, because the neighbouring morasses are then deeply overflowed: and at St. Domingo, the *dry* season is most productive of disease; the superfluous water being evaporated, and those degrees of moisture most favourable to morbid exhalations being now induced.

But as to the *Point*, it is a low and flat situation; its streets in general unpaved, its alleys very filthy, and the ground around it marshy in many places. The frequent warm rains were insufficient to overflow the most noxious places, but served to keep them constantly moist, while the sun exhaled the poisonous marsh miasma. Hence, remittents were unusually numerous from a very early period, and prevailed in a particular manner in August, as will appear from the report of the Physicians, given in a former letter. The frequent rains produced the same effect through every part of the country. Situations high and hitherto healthy, were now diseased with intermittents and remittents. We know, that heat alone is insufficient to produce bilious fevers; and requires a certain combination of noxious moisture to become their remote cause. "Heat and moisture," says Cullen, in his MSS. lectures, "are required to excite marsh miasma; for moisture in cold seasons and climates has not the same effect, as is evident, as you recede from the equator to the pole; nor by heat alone, for in the warmest

* The tide is not regular as in the Delaware, but is influenced chiefly by the wind.

climates and the warmest seasons of other climates, if they be dry, fever is not produced." A very dry summer will make those places, which are usually the seats of disease, healthy, by dissipating the moisture, and drying the marshes; and a very wet summer will produce an effect equally good in some situations, by completely covering with water, the usual sources of exhalations, and thereby preventing their occurrence. To this circumstance, we ascribe the observation of *Wintringham*—that those seasons in England, most uniformly rainy, were most healthy. But while frequent rains induce the change just mentioned, they cause places commonly dry and healthy, to become the seat of sickness. The soil becomes of a marshy nature, and consequently, while operated on by a powerful sun, the source of bilious fever. In this manner the late situation of the country may be accounted for.

We have now seen, that a concurrence of causes existed, to render not only the Point, but the country also, very uncommonly diseased with remitting fevers; and therefore, prepared the way for the appearance of the yellow fever, if the two diseases depended on the same causes. The yellow fever appears at any season of the year, says *Dr. Bruce*,* but in its most malignant form, when the heat and moisture are greatest. These certainly existed in an uncommon degree, and the common remittents had not long prevailed, when the other reared its head in places, where the causes of bilious fever existed most abundantly. As the yellow fever became more general, the former gradually vanished. The disease having thus originated, was soon propagated by infection; and after a very short time, it appeared to depend almost solely, on these means for its progressive dissemination.

I may object, however, to such origin of the yellow fever, by inquiring—why, if it can arise from domestic sources, it has not hitherto appeared with similar execution in Baltimore?

* See *Lind*.

That sporadic cases have occurred among us, cannot surely be denied. One I have seen myself incontrovertibly characterised; nor am I singular by any means in this observation. Without deducing, however, any particular inferences from these circumstances at present, let us direct our attention to two other subjects worthy of consideration; the evident change in our climate—and that particular constitution of the atmosphere, without which, diseases cannot become epidemic.

We have already remarked, that remitting fevers require for their existence, not only a marshy soil, but a great degree of heat also to generate the poisonous miasmata. A cool north-west wind, prevailing frequently and with force, must unavoidably impede that putrefactive fermentation necessary to produce marsh miasma, and must destroy its effects, by weakening its influence. But the warm, moist, S. and S. E. wind will increase the noxious process, and give additional vigour to its virulence. Let us very briefly review a few circumstances, relating to the variation of our climate. Formerly, European vessels, endeavouring to reach our port, would be driven off for weeks by the N. W. wind: At present, how unusual is it, for it to prevail incessantly during a very few days. Formerly, the winters were intensely cold, and the snows amazingly deep: At present, how mild are the same seasons; how extremely infrequent are snows of any considerable quantity. Formerly, the spring was early in its approach, and autumn followed in proportion. The summer was fraught with thunder-storms, which, while they agitated, refreshed and purified the atmosphere; and the W. or N. W. winds were wont to join their salubrious breezes in dispelling the causes of disease. But, can the annals of our country exhibit a parallel season to the last? Lightning and thunder were almost unknown; instead of the invigorating breezes of the west, the south or south-east, almost incessantly poured on us their sickly enervating blasts. Instead of showers, which formerly brought down health from the heavens, we had frequent rains as impure and unrefreshing as the “mists of Lanç:” being attended by the last-named winds, hot, sultry,

and oppressive. Locusts were not more numerous in the reign of Pharaoh, than mosquitoes through the last few months: yet these insects were very rare only a very few years past, when a far greater portion of Baltimore was a marsh.

To this unusual concurrence of physical changes in the ærial and animal kingdoms, let us ascribe the fact, that the intermittents and remittents, which preceded and followed the yellow fever, differed most obviously from such as usually appeared in the same seasons of the year. They would not submit to means formerly successful in their cure; but were aggravated by those remedies, by which they were formerly subdued.

That it requires also a particular combination of circumstances to render certain diseases epidemic, must be obvious from numerous facts. The atmosphere must be peculiarly modified to admit this effect; but this peculiar modification is still, in a great degree, involved in darkness, although we meet with facts sufficient to demonstrate its existence. Why is a rheumatic person sensible of every slight change in the air, which by another cannot be observed? Unless this peculiar constitution of the season, as it has been termed by Sydenham, be admitted, how does it happen, that the same disease, will be one year epidemic, and the next sporadic? How does it happen, that although the source of a disease always exists, yet, even the most destructive and contagious, as the plague, will cease with a season, and not rage with equal violence in the next? That this state of the atmosphere is greatly dependant on causes existing in cities, appears evident, from contagious fevers being generally confined to them, and losing their virulence, when carried into the country. Were it not so, the plague, having found admittance into a city, could not fail of extending itself through every part of a nation. Pringle has remarked, that for want of this disposition of the air, the jail fever raging in the Old Bailey, spread itself no further. Let us examine the works of Sydenham, and we shall find, on this subject, truths more useful, than Rome

thought the volumes of the Sybil ; or the Mahometan contemplates with fond credulity, in the pages of his Alcoran.

This constitution of the atmosphere, assuredly prevailed through the late unfortunate season ; and, combined with the peculiarities of the climate, will explain, why the yellow fever had not existed before. To this cause, may be justly attributed also, the destructive prevalence of another disease, so nearly resembling the former in many circumstances. I mean the small-pox, whose extent and mortality during the late months is without an example in the history of Baltimore. ADIEU !

LETTER X.

In the present very limited state of my knowledge, it appears, sir, probable, that the yellow fever does not require specific contagion to give it existence in particular regions of the world. It may arise from the sources of the common remittent, to which we have always been exposed ; and as our western country becomes more cleared and cultivated, the consequent variation in our climate will favour the production of the yellow fever. To guard against this possible contingency, it behoves the police of our towns to give particular attention to their condition with respect to cleanliness. Numerous nuisances should be carefully removed ; docks should be preserved free from filth, and neighbouring marshes converted from the sources of disease, to healthy cultivated ground. Erasmus long since ascribed the frequent plagues of London to its filth ; but the English at that time thought the Danes extravagant and mad because they cleansed themselves once in the course of a week. Their ideas of delicacy have since improved, and they now enjoy that health, which they deserve. But in some of the chief cities of our country, a stranger might suppose putrid docks and stagnant waters to be as much the objects of our veneration, as ide-

ots are by the people of Savoy, and mad dogs by the inhabitants of some parts of Indostan.

I remarked formerly, that as this disease became more general, it appeared to be almost the only one prevailing. Yet from a view of its symptoms, as predominating variously in different persons, it would be no difficult matter to multiply its names, until the methodical nosology of Cullen himself, should cease to furnish it with titles. It might be denominated phrenitis; and indeed it was termed for a while by one physician “an epidemic phrenitis.” Pleurisy and “febris catarrhalis,” were readily applied; dysentery and cynanche maligna, rheumatism from the general pains, and *typhus from muscular debility*, and a thousand others were liberally bestowed on it. But in general, it was denominated “the fever,” “that fever,” and “that there fever:”—titles which the great Cullen has omitted, but which wiser physicians have adopted. This variety of names would lead to infinite mischief by those men, whose prescriptions were not regulated by symptoms, but by empirical prejudices. It was forgotten, that the character of the disease continued unchanged, although its shades were somewhat varied—that it was still a highly inflammatory fever, although some of its symptoms might appear most oppressive in different parts of the body; and that it still required the same mode of treatment, varied only in proportion to its violence.

Although common remittents were very general, prior to the appearance of the yellow fever, yet they gradually disappeared, giving place, as it were, to the stronger epidemic. By the middle of September, I did not meet with a case of any other disease, besides the yellow fever, except the small-pox, which continued to prevail in a most extensive and fatal manner. We have been taught by Sydenham to expect, according to the combination of circumstances, the despotic prevalence of some one particular epidemic, over every other disease, appearing in the same season; and if we had not innumerable facts to resort to, in corroboration of his assertions, we might have inferred such a truth even *à priori*: For as the particular constitution of the

season admits the existence of a particular epidemic, it must give rise to certain symptoms in preference to that of any others. These symptoms, as depending on the same causes must bear a near relation to each other, and characterize the epidemic, as inflammatory or otherwise. Should the disease be at any time of an inflammatory nature, though prevailing only sporadically, that disposition of the atmosphere, which renders it epidemic, must also give additional inflammatory violence to its symptoms. Diseases, which in the usual routine of their appearance, are regarded with no especial apprehensions as to their event, would now assume a more serious type, or through defect of the particular circumstances favouring their existence, they would entirely disappear. Such as remained must bear the general character of the season, and from a similarity of symptoms, demand a similarity of treatment. Two diseases, therefore, of an opposite nature, cannot exist epidemically at the same time. The more powerful, or that more especially produced and supported by its fostering causes, will drive away the weaker, or that which has less power for its support. We are not however to expect every manner of disease totally to vanish before the epidemic—"for when I affirm," says Sydenham,* "that one epidemic is expelled by another, I do not mean, that the yielding disease becomes quite extinct, but only less frequent."

During the prevalence of the late yellow fever, it is to be remarked, the small-pox did not vanish, but retained its ground. But this is not an objection to the opinions hitherto advanced. Is not the yellow fever, a disease highly inflammatory? So is the small-pox. Was this remitting fever more inflammatory than usual, from the particular constitution of the season? So was the small-pox. As an inflammatory fever, were not the yellow fever and the small-pox the same disease, with particular symptoms differently modified? And, therefore, would

not that cause, which increased the violence of the one, augment the vehemence of the other? And if one general power prevailed, whose influence gave rise to some most characteristic symptoms, ought we not to expect it to reign equally over both diseases? In fact, the two disorders were accompanied with symptoms common to them both, and, had the eruption attended the yellow fever in place of a yellow skin, or vice versa, they might have generally been classed under the same name. Hæmorrhages attended both, and very frequently, the foreness or pain in the epigastric region, was as troublesome in the one as in the other. That particular symptom, which we have formerly quoted from some authors—the dangerous diarrhœa occasionally accompanying the close of the yellow fever, was common in the small-pox, and I am informed, proved fatal in several instances. It is unnecessary to continue a parallel of symptoms, as it would be almost a recapitulation of what I have formerly written.

If the most oppressive symptom resembled dysentery, it yielded only to the means which succeeded in the more common form of yellow fever. The same observation applies to its appearance under the form of sore throat. It clothed itself in the garb of gastrodynia and tetanus, which obstinately opposed every mode of relief, until the general plan of cure hitherto described, immediately overcame them. As the season advanced, and its constitution became changed, the yellow fever disappeared, and gave room for the return of such diseases, as usually prevail in that season.

The yellow fever, evidently proved contagious in Baltimore in many instances. Some families at the Point avoided it, by carefully precluding all communication with the sick. Vessels also, preserved their crews in health, by removing to a distance from the wharf, and preventing the mariners from going on shore. But, as soon as one affected person came on board, he quickly infected all, or the greater part of the crew. One man, contracted the fever on shore, and carried it on board the ship *Phœnix*, whose crew was previously in good health. He laid ill in the

cabin and died. The man, who nursed him, caught the disease, and communicated it to the mariner, who attended him in his illness. The latter, went forward, and by lying sick one night in the hold among the remaining sailors, communicated the fever to the whole crew. Five died out of twelve. The captain of the Swedish ship *Resolution*, preserved the health of all his men, by preventing their communication with the shore : but venturing there himself in the middle of September, he caught the disease, and carrying it on board his vessel, communicated it to his attendant before he died. It passed thus, from one to another, till almost all the crew became diseased. I believe, seven of them died.

Even in the town, every precaution sometimes failed in obviating the effects of contagion. I will mention only one or two instances. Mr. Ogle, by sitting a short time on the third of October, with a man, who died in as healthy a spot as any that Baltimore affords—(in Old Town) caught the fever, and was several days in imminent danger of losing his life. On the fifth, Dr. Heineck's boy died ; he contracted the disease, by nursing a sick man in town, a part of one night only. Mr. Sheerer died on the same day : a young man, William Murphy, who nursed through one night, took the disease on the evening of the sixth, and died before noon, the following day.

I have had an opportunity of knowing but one or two instances of its communication in the country. Mr. C——, a country gentleman of great respectability, informed me, that he had contracted the disease in town by sitting two hours by a sick man, and communicated it to some of his family. One of his children died.

Mr. W——d, formerly a student of medicine in this town, contracted the disease on the Point, and going home, on the eastern shore of this state, communicated it to some of his family ; himself and his cousin fell the victims of the fever.

The number of deaths in Baltimore by the fever, amounted to nearly three hundred and sixty. ADIEU !

Baltimore, Dec. 1794.

Dewees' Observations on DR. DENMAN'S APHORISMS, on the Use of the Forceps.

To the Editor of the Philadelphia Medical Museum.

SIR,

I SEND you a few observations on some of the Aphorisms of Dr. Denman, on the use and application of the Forceps. My inducement to this, has been, a conviction long felt, of their imperfection, contradiction and ambiguity. I have not attempted to remedy these defects; but have, I trust, from a careful examination of them, pointed out what appeared faulty, and given satisfactory reasons for my dissent. If they should not appear in the same light to others, who may have perused them, I shall be happy to have my own oversights pointed out, and will thank him who may set me right, where I wish not to be wrong.

Dr. Denman has long, and justly, ranked among the first in this department of medicine. The present attempt is not with a view to diminish that fame, by calling in question, without reserve, his talents or his doctrines; it is designed merely to diminish the influence of precepts too limitedly conceived, and too negligently expressed, in a small work, entitled "Aphorisms on the application and use of the Forceps," &c. Perfection falls not to the lot of man; and Dr. Denman himself acknowledges, that cases for the use of Forceps occur but rarely in any one man's practice; he therefore did not contemplate a perfect system, in his directions for their use. However sensible he may have been, of the imperfection of his work, from the considerations just mentioned, the public had a right to look for principles that had been well ascertained, and directions without ambiguity or confusion. Situated as Dr. Denman has been, we cannot suppose him ignorant of the many improve-

ments that have been made in midwifery on the continent of Europe; but we fear, that that prejudice, so injurious to the advancement of science, has either made him overlook, or not sufficiently appreciate, the merits of some of the practitioners abroad; how else shall we account for the entire neglect of the principles and practice of Levret and Baudelocque, in the use of these valuable instruments? Nay, his own countryman Smellie, seems to have experienced the same fate, since he, many years ago, established their use and powers much more certainly, than the Doctor appears to think they possess at this day: be this as it may, I have nothing to do with the cause of failure or imperfection; and am only to judge of the work as it stands; but cannot, however, withhold saying, I think its utility very limited or questionable, and its chance of doing mischief, great. Knowledge of every kind must be progressive; but with a view to this, errors must be pointed out, or remedied; otherwise it becomes stationary, or perhaps retrograde. It was with a hope, that one of these purposes would be effected, that the present strictures were made; and that, by pointing out error, I should, however remotely, or indirectly, diminish some of the difficulties or embarrassments, attending the use of these truly useful instruments; and also, lessen some of the prejudices entertained against them.

The indiscriminate use of instruments cannot be too seriously deprecated; and with this view, Dr. Denman has laid it down as a fundamental principle, "that no instruments are to be used in the practice of midwifery; the cases in which they are used, are, therefore, to be considered merely as exceptions to this rule."* From this consideration alone, we ought to have the most clearly defined cases, where, and when to employ them, as well as the most precise directions for their application; neither of which ends are answered, by the Aphorisms of Dr. Denman. For it must be again declared, they ill define the cases where they are necessary, and vaguely direct the mode of application. After having said thus much, I will give my reasons for my

* Aph. i. p. 13.

diffent. With this end in view, I will proceed regularly with the book.

The Doctor begins with an arrangement of labours ; which he classes under four general heads, viz. " I. Natural. II. Difficult. III. Preternatural. IV. Anomalous or Complex."

" Class I. Natural Labours."

Character. " Every labour in which the process is completed within twenty-four hours ; the head of the child presenting, and no adventitious aid being required."

Many objections might be made to this character of Natural Labour, which is taken from time and the presenting part ; but as this is not a material point, and as some objections may perhaps be made to any definition that may be given, I shall pass this without comment ; only observing, I cannot help preferring Baudelocque's, which makes all labours natural, that do not require the interference of the Accoucheur.

I cannot, however, so silently pass by his " Varieties" of Natural Labour : he reduces these to four, viz.

" 1. The face inclined towards the sacrum."

" 2. The face inclined towards the ossa pubis."

" 3. The head presenting with one or both arms."

" 4. The face presenting."

In this arrangement, we not only find incorrectness, but ambiguity. Incorrectness—since, with the presentation of the head, that of the face is included ; and also, those cases, in which the vertex presents originally to the pubes or to the sacrum, are omitted. These are not distinctions without differences ; for I hold them important in a work like this, as will be more fully shewn in the sequel. Ambiguity—since we are at a loss to tell what ought to be meant by the head of the child. It has been usual with most authors when speaking of head presentations, to mean the vertex as the presenting part ;* and they have for the most part, carefully distinguished between head and face cases. This

* " That part of a child which descends lowest into the pelvis, is to be esteemed the presenting part." Aph. p. 6.

distinction is founded on practical necessity, and it is one that the student or young practitioner ought ever to bear in mind, as their mechanism, and for the most part their treatment, are essentially different. Indeed, a little after, the Doctor appears to concede this opinion, since he makes a face presentation a cause of difficult labour.* It is very possible, it is true, that a labour may, agreeably to the Doctor's definition, be natural when the face presents, but this can only happen from the concurrence of several causes, which, but too frequently are absent: for the most part they are productive of difficult labour, and not unfrequently are obliged to be made preternatural.

“ CLASS II. DIFFICULT LABOURS.”

“ *Character.* Every labour in which the process is prolonged beyond twenty-four hours, the head of the child presenting.”

The same objections may be made to this definition as to the former; we find in it the same want of precision as we noticed in the other.

We might dispute perhaps with great propriety, the agency of some of the causes he has enumerated of difficult labours; such as the partial action of the uterus; the imperfect discharge or dribbling of the waters; the shortness of the funis, &c. but, as these are less important mistakes, than those proposed now for consideration, I shall pass them by, and immediately proceed with the observations on the “ directions for, and admonitions in, the application and use of the forceps.”

“ The intention in the use of the forceps is, to preserve the lives both of the mother and child, but the necessity for using them, must be decided by the circumstances of the mother alone.”† I consider this aphorism very deficient, or perhaps more properly speaking, very faulty; it is acknowledged that, “ the intention in the use of the forceps is, to preserve the lives both of the mother and child;” but we are immediately after told, “ the necessity for using them, must be decided by the circumstances of the mother only”: did we always literally obey this

precept, it would be impossible to fulfil the indication for which the forceps were prescribed. It is a glaring and palpable solecism, indeed, we had nearly said Irishism; for it seems to declare, you are to save by the forceps both mother and child; but if there is no "circumstance" on the part of the mother that would require their use; that is, (as I understand it) if she herself is in no danger, or can eventually, no matter how long, expel the child, you must not use them, however important they may be to the salvation of the child. Need it be said, if this advice is followed, it would prove the destruction of very many lives? for instance, when the head is very far advanced, and the vertex is about to emerge from under the arch of the pubes, but is retained there, by the extraordinary size of the child's head, by its uncommon ossification, or the unusual rigidity of the external parts; ought we to run the risk of losing the child by withholding the forceps, because the indication is not taken from the circumstances of the mother? Or, let us suppose the body and shoulders of the child to be delivered, and its head to be retained at the inferior strait; in this situation, it would inevitably perish were it to continue long, nay, but a short time: ought we to abandon the poor infant to its fate, because its head may have been either positively or relatively too large, to be immediately expelled by the common efforts of the mother? or because, there was no "circumstance" on the part of the mother, that required this immediate interference? The use of the forceps under "circumstances" of this kind, has been considered by Baudelocque, as a valuable improvement in midwifery, and he does not fail giving the very justly merited praise to Smellie for the discovery.

Aph. 5. "It is meant, when the forceps are used, to supply with them the insufficiency, or want of labour pains; but so long as the pains continue, we have reason to hope they will produce their effect, and shall be justified in waiting."

This aphorism, like the one just noticed, would lead the young practitioner into great error; an error, on which the life of both mother and child is staked. By this aphorism, we are

authorised to wait as long as pains continue, before we use the forceps ; than which, nothing can be more dangerous ; by doing this, we lose time truly precious to the individuals concerned. How many cases are there, where the forceps might not only be used with safety and advantage, but where they are truly indispensable, yet, where pains continue, nay even continue with violence, but unavailingly, either from the bad situation of the head ; from absolute or relative narrowness of the pelvis ; or uncommon rigidity of the soft parts : under " circumstances" like these, we are, through false principles, to subject the woman to all the consequences of the long and violent pressure of the child's head on the soft parts within the pelvis, and thereby hazard inflammation, suppuration or gangrene ; while we expose the child to all the evils arising from its head being long and violently compressed, by the reiterated contractions of the uterus. Yet here we are forbidden the aid of the only means, by which the labour can be terminated with safety to mother and child, or at least, we are told it will be justifiable to wait, maugre the accidents that may ensue. Besides, the Doctor has in one member of this aphorism declared, the " forceps are to supply the insufficiency of pains ;" if this means any thing, it must be understood, that, where pains are unavailing, though they still continue, we are to have recourse to other means, than the common or natural agents of delivery ; for I presume, the sufficiency of pains ought to be determined by their effect, rather than by their apparent force. Yet immediately after, we are told " so long as the pains continue, we have reason to hope they will produce their effect, and shall be justified in waiting." The inexperienced practitioner would be in doubt what plan to pursue ; the timid one, would be lulled into a security fatal to his charge.

What would be the consequence of this indecisive conduct, in cases of convulsions on the accession of the pains ? Death most probably to both mother and child ; for we have no hope in many cases, but in the speedy termination of the labour, and the forceps are frequently the only means, by which this end

can rationally be obtained. What would be the result, did we exclusively rely on the hope, that, the pains would eventually "produce their effect" when the head was badly situated at the inferior strait, and where, of course, the proper relation between the head and pelvis does not obtain? Ought we to abandon the unfortunate mother to the unavailing efforts of nature, and become the idle spectators of her fruitless endeavours, because she is still able to continue them; or ought we promptly to step in to her aid, employ the forceps, rescue the devoted child, and save perhaps a valuable mother? Instances might be multiplied, in which it would be equally improper to trust to "time and patience"* as remedies for difficult labours; but these for the present will suffice.

Aph. 9. "A rule for the time of applying the forceps has been formed from this circumstance; that, after the cessation of the pains, the head of the child should have rested six hours in such a situation as to allow the use of the forceps."

To wait six hours in many instances, as proposed by this aphorism, would be waiting a time at the expiration of which, our efforts would no longer be useful or availing. In convulsions, hemorrhagies, and faintings, the most prompt aid is frequently required; to wait in cases like these six hours, is sometimes to seal the doom of our patient. It may, perhaps, be said, it is to be understood, we are to wait six hours, only when no threatening symptom attends; this perhaps may be the Doctor's meaning, but it must be confessed it is not expressed. But if we even admit this, which, by the bye, I consider entirely gratuitous, we still have to complain of great want of precision in this aphorism; it is regulating the accoucheur's conduct by time instead of circumstances, which, I think no small fault: besides, "threatening symptoms" may be considered as a very indefinite direction; for what one might consider as such, another would not; the nature of those circumstances ought to have been clearly pointed out, where the Doctor would have us act, and where

we might safely, agreeably to his opinion, be idle. But this he has not done, and he leaves our conduct to be regulated by a definite number of hours. It does not appear in any instance with Dr. Denman, either in his introduction to midwifery, or in the work before us, that he considers the long pressure of the child's head on the soft part of the pelvis, as entering into, or making even a part of, an indication for the use of forceps. Whence this happens, we cannot pretend to determine; but certain it is, many others whose reputation is equally high, and on whose judgment at least an equal value ought to be set, have viewed this matter in a very different light. It has with some been considered, as an indication exclusively sufficient, for having recourse to adventitious aid; fearing much more, the ill consequences of delay, than any mischief that might ensue, from what Dr. Denman might think a premature application of the forceps.

It is true, the Doctor endeavours to obviate the objections which he foresaw must be made to this rule, by framing Aphorism 10. "But this, and every other rule, intended to prevent the rash and unnecessary use of the forceps, must be subject to the judgment of the person, who may have the management of any individual case." But to whom is this aphorism directed? Is it not giving a discretionary power to those who are supposed not to have sufficient knowledge to direct it? for this work, agreeably to his own declaration, was designed "for students,"—and they, unfortunately, may be called to cases, before they possess that judgment he inclines to rely on. They, in vain would seek resource from this work; they must turn from it with indecision and embarrassment. In a work so professedly didactic, the plainest and most undeviating rules, ought to have been laid down; to rely on the judgment of the practitioner is not teaching, it is supposing the possession of a knowledge, this work ought to have been capable of giving; instead of obtaining information, we are supposed already not to stand in need of it; instead of being enlightened we are bewildered; on the one hand, we are cautioned against the use of the forceps, vaguely

and injudiciously; on the other, we are warned against the too long delay of them, without being clearly instructed where it may be proper to employ them.*

Aph. 13. "The lower the head of the child has descended, and the longer the use of the forceps is deferred, the easier will in general their application be, the success of the operation more certain, and the hazard of doing mischief less."

How ill does this aphorism comport with the one just quoted? This rule not only restricts us to very narrow limits in the use of the forceps, but decides without sufficient caution, that the longer they are deferred the better. One of the greatest improvements that midwifery has received for this last century, has been perhaps, the great perfection to which the forceps have been brought, and the certainty to which we have arrived in their application; together with the knowledge of their utility and safety, in almost any situation of the head within the pelvis. Levret, Smellie, Baudelocque and others, bear testimony in their favour, under circumstances not dreamed of by their predecessors, or thought impossible by some of their contemporaries. Before these instruments underwent the valuable changes, effected by the authors just mentioned, and when the pell-mell mode of application was only pursued; this aphorism, might have been adopted in its fullest latitude, without perhaps subjecting our patients to worse consequences than might have resulted, from the forceps themselves. But when we find them in the state of perfection they now are; and when we reflect on the certainty of the laws by which their use and application are directed, I cannot withhold saying, this aphorism teaches not only a false, but a dangerous doctrine. I do not hesitate to agree with Dr. Denman, that "the longer the use of the forceps is deferred, the easier will in general be their application," but I cannot by any means concede "that the success

* Aph. ii. p. 15. "Care is also to be taken that we do not, through an aversion to the use of instruments, too long delay that assistance we have the power of affording with them."

of the operation" will be "more certain, and the hazard of doing mischief less." In contemplating the success of an operation, we ought certainly to consider, whether it is performed at a time, and in a manner that will the most certainly fulfil the objects for which it was intended. Let us see how far the doctrine inculcated by this aphorism can be justified by this rule. The end proposed in the use of the forceps is, to save both mother and child.* To fulfil this intention, the aphorism tells us, the longer their use is deferred, the more successful will be their operation, and the danger of doing mischief lessened. Did we follow this advice, we should not apply the forceps until the head was about to emerge from under the arch of the pubes, in cases where the pains propel it from time to time; and this confessedly would be delaying their use to the greatest possible extent we can suppose; but to have deferred them until this time, would be contrary to the Doctor's opinion of their use, since he says, aphorism 17. p. 16. "when the head has emerged under the arch of the ossa pubis, the use of the forceps can very seldom be required;" here we find the Doctor at variance with himself: but, let us suppose the head has not been made, by the repeated efforts of the uterus, to pass through the inferior strait, but merely to have arrived at it, and is there detained by some cause or other; we must now delay the use of the forceps, until the woman's strength is exhausted in vain efforts to propel the head; until inflammation or gangrene has ensued; or, until the child loses its life; because we are taught to believe, that "the lower the child has descended, and the longer the use of the forceps is deferred, the easier will in general their application be, the success of the operation more certain, and the hazard of doing mischief less." What danger can ensue under circumstances like these, from the use of the forceps; that will not be exceeded by their too long delay? Besides, women are subject to a variety of diseases during labour, that leave no resource but in the speedy application of the forceps; such are convul-

* Aph. iv. p. 13.

sions, syncope, floodings, strangulated hernia, &c.—in cases of this kind, a moment's delay might be fatal. It perhaps may be urged, that, under circumstances so imperious, we have a choice of remedies, and, that turning would be the preferable practice. This certainly is the case sometimes, and would perhaps be always, could we command the conditions necessary for its success; but this is impossible, and we are left with no alternative but the forceps. For when the head has escaped from the orifice of the uterus, turning must not be thought of; and when the waters have been long discharged, it is for the most part impracticable. To obey this aphorism then, is to wait until the forceps are for the most part useless;* or if we do not wait until they are useless, we employ them with uncertainty and hazard, or in waiting for the head to pass to a certain part of the pelvis, that we may employ them with more certainty and success, we subject both the woman and child to danger by ill-timed delay.

From what has been said, it would appear, that, very often by delay, we should not fulfil the object proposed in the operation; namely, the safety of both mother and child; and by it, lose the best possible time for performing it.

It will, perhaps, be said, in a work of this kind, some general rules are all that is to be expected, and that the operator must supply its defects. I did not expect rules that would apply to every possible case, but had a right to look for those, that would prevent any very great error in their application. In this I have been disappointed, and am not singular, as it has not been an infrequent thing to hear these aphorisms complained of.

Aph. 14. "The forceps should always be applied over the ears of the child; it must, therefore, be improper to apply them when we cannot feel an ear."

I cheerfully subscribe to a position entertained in this aphorism; viz. the forceps should always be applied over the ears

of the child ;” but can by no means consent to the deduction, that, “it must therefore, be improper to apply them when we cannot feel an ear.”

There are many cases, wherein it would be proper to apply the forceps, where an ear cannot possibly be felt ; for instance, first, when the head has not completely passed the superior strait, and before it has escaped from the orifice of the uterus, and, more especially, when this viscus is contracted firmly round the head ; secondly, when the head is wedged diagonally in the inferior strait, owing either to the absolute or relative want of size in the pelvis ; thirdly, when the head presents originally at the superior strait with the vertex to the pubes, and the anterior fontanelle or bregma to the sacrum ; fourthly, where the anterior fontanelle or bregma, presents originally at the superior strait, towards the pubes, and the vertex towards the sacrum ; fifthly, where either of these presentations have passed the superior strait in the direction just mentioned, and are arrived at the inferior strait ; sixthly, and lastly, where the vertex or forehead are about to emerge from under the arch of the pubes. In all these cases, it is impossible to feel an ear by a common examination, (which is the doctor's criterion of the manageableness of the case) yet, in either of them, the forceps may be exclusively indicated. What could have led Dr. Denman to the framing of this aphorism is difficult to say ; certain it is, it has neither the advantage of simplicity, nor the truth of experience to recommend it.

Let us suppose a case in which the ear cannot be felt, not because it is out of reach of the finger by a “common examination,” but because there is not room for the finger to pass, (this let it be remembered is not a gratuitous case, for Dr. Denman himself admits it*) ; what must be done in this instance ?

* “It must, therefore, be improper to attempt to apply them before an ear can be felt, either because the head is too high to allow us to reach that part, or because it is so closely locked in the pelvis, that there is not room to pass the finger for that purpose, between the head of the child and the pelvis.” *Introduction to Midwifery.* p. 134.

It would seem, the Doctor did not consider the difference between the thickness of the finger and the blades of the forceps, or that they could very

every consideration and circumstance on the part of the mother and child call loudly for immediate assistance ; this can only rationally be given by the forceps ; but they must not be used ; Why ? because truly, an ear cannot be felt. Thus, then, by a careless distinction, or an unnecessary and injurious caution, the lives of both mother and child, are to be put in jeopardy. I deem this aphorism of sufficient importance, farther to observe, that it is not only defective for the reasons already given, but also, because it leads the pupil or young practitioner into a very important error ; it obliges him to determine the situation of the head by the ear, and makes him place his dependence for this knowledge on this part ; a mode of acquiring this very necessary information, that is not only very inconvenient, but is also very limited ; nay, it has been already observed, it is impossible sometimes to obtain an idea of its situation by this part, so that he is either obliged to abandon the use of the forceps, and trust to the efforts of nature, or have recourse to the crotchet ; or he applies them at the risk of embracing the greatest diameter of the head, or diagonally. In the first instance, all the force he could apply, would not be sufficient to deliver the head ; and in the second, they would either not lock, or else would slip, if made to do so by force : in either way the accoucheur must be foiled, and the woman and child suffer. I shall dismiss this aphorism, with a recommendation to the pupil or young practitioner, to depend upon the fontanelles and sutures, for a knowledge of the situation of the head ; they can always be felt, and, if carefully examined, will never mislead.

Having thus noticed the principal aphorisms which relate to the employment of the forceps ; I shall now proceed to those which relate to the mode of application. Before we proceed,

readily pass when the finger could not ; or else he knew of no other method than the ear, to determine the situation of the head, and would not run the risk of being foiled with them, since he could not determine to what part of the pelvis they were directed. What is to be expected, under circumstances like these ? Either that the woman must be allowed to exhaust herself ; the child perish before she can deliver herself ; or have recourse to the crotchet.

however, with this examination, it strikes me as necessary to lay down a few rules, the observance of which, I consider as indispensable in the application of the forceps. By proceeding in this way, I shall be saved needless repetition; and it will at the same time, serve to shew at one view, how very deficient Doctor Denman's rules are for the application of the forceps, and how very inadequate to the end proposed.

I shall not enter into a minute description of the forceps as we find them at the present day, as they all present the same general character. They differ more in length than in form, and may safely be divided into, the English short, and the French long forceps. These differences in length, however, make none that is material in their application, as the same general rules apply with equal propriety to both.

I shall describe the forceps as consisting of two blades with handles; as having a superior concave, and an inferior convex edge, of having a lateral or external convex, and a lateral or internal concave surface. The blades are distinguished into right and left hand blades. Having given this outline of the forceps, I will proceed with the rules for their application, &c.

RULE I.

The forceps are always to be applied over the ears of the child, but in such a manner, as to embrace the head rather diagonally than perpendicularly; that is to say, the forceps must traverse the head nearly in the direction of a line, if it were drawn, from the vertex to the chin, and not in the direction of a line drawn from the base of the skull to the summit of the head.

RULE II.

They are to be applied in such a manner as, that their superior concave edge may always come under the arch of the pubes, when the head is about to emerge from the pelvis.

RULE III.

Each blade of the forceps must have its definite situation in the pelvis, that rule the second may never be infringed.

Having laid down these simple, but important rules, I shall examine the Doctor's, and see how far they will accord with them.

"The following rules are given," says the Doctor, "on the presumption that the head of the child presents, with the face inclining or verging towards the hollow of the sacrum," &c.

SECT. II. p. 17.

1. "Carry the fore finger of the right hand to the ear of the child."

This rule may be complied with wherever it may be practicable. I have already remarked how seldom this is the case.

2. "Then take the blade of the forceps to be first introduced, by the handle, in the left hand, and conduct it between the head of the child and the finger already introduced, until the point reaches the ear."

The rules we have just mentioned, are, agreeably to Dr. Denman's avowal, "predicated on the presumption that the head of the child presents with the face inclined or verging towards the hollow of the sacrum." The head, after it has arrived at the inferior strait, may be so situated, as, that the face may have two inclinations towards the sacrum, which are essentially different. First, it may be so situated as, that the vertex shall be behind the left foramen ovale, while the face will nearly correspond with the right sacro-iliac symphysis; or, secondly, it may be so placed, as, that the vertex will be behind the right foramen ovale, while the face will be towards the left sacro-iliac symphysis. These situations of the head are by far the most frequent which occur in the human subject. The first step necessary, that the forceps may be applied with facility and suc-

cess, is, to determine which of the two it may be ; after having satisfied ourselves on this head by a careful examination of the fontanelles and futures, we are to take care that rule the third is complied with, that we may fulfil rule the second.

Now let us suppose the head to be situated after the first manner ; then let us see what rules will be necessary that the forceps may be properly applied ; and then attend to the rules of Dr. Denman, and determine how far they will answer the end proposed.

In the proposed situation of the head, the right ear of the child will be rather to the right of the symphysis pubis, and the left, towards the left sacro-iliac junction, the face consequently will be towards the right sacro-iliac junction. That rule the first may be strictly complied with, the right hand blade of the forceps must be nearly behind the symphysis pubis,* and the left hand one nearly before the sacrum,† while the handles must be much inclined towards the left thigh of the mother. This inclination of the handles is essential to the success of the operation ; (not a word of which is mentioned by Dr. Denman) for if we do not attend to this, we must necessarily seize the head in the direction of its perpendicular diameter, instead of its oblique. If we seize the head after the first manner, we shall be in danger of making the face recede too far from the breast, and thus make the head present its greatest diameter parallel with the smallest diameter of the inferior strait : and in order that we may embrace it after the second, and proper manner, the rule of inclining the handles towards the left thigh of the mother, is indispensable.

Let us now examine what would be the consequence did we follow Dr. Denman's rules, in a case of this kind. First, we should embrace the head in its perpendicular diameter ;‡ secondly, we should make the convex edges of the forceps come un-

* But rather to the right of it. † But rather to the left portion of it.

‡ For we are directed to carry the first blade until the lock reaches the external parts near the inferior edge of the ossa pubis, while the second is to be carried till the lock reaches the perinæum, or even presses it a little backward.

Aph. vi. vii. p. 18.

der the arch of the pubes,* if it were possible to make the head emerge from there ; or thirdly, should we not bring the convex edges in this manner, we should be obliged, were we to bring them otherwise, to make the face of the child come uppermost.

The presentation we have chosen to illustrate our point, is by far the most frequent of the two mentioned ; but Dr. Denman's rules can only be useful in the second. Besides, there are other situations of the head, in which these rules would apply with even less propriety. I mean, where the ears of the child are turned towards the sides of the pelvis. I have purposely left the examination of two aphorisms, (which in order, should have come before,) until the present time, as I can at one and the same time point out their fallacy, and expose the imperfection of his rules for the application of the forceps.

Dr. Denman, in aphorism xvi. p. 16. says, "The ear of the child that can be felt, will be found toward the ossa pubis, or under one of the rami of the ischia," and in aph. xvii. that "the ears are not turned to the sides of the pelvis, till part of the hind head has emerged under the arch of the ossa pubis, when the use of the forceps can very seldom be required."

I have already adverted to Dr. Denman's omission of several material presentations of the head, and specified two, deemed important ; I shall again insist on this here, and show that both the above aphorisms are far from practical truth. The two instances of presentation I noticed some time since, as not having a place in Dr. Denman's varieties of natural labour, were, first, when the vertex or posterior fontanelle is to the pubes, and the anterior fontanelle or bregma is to the sacrum ; and secondly, where the bregma is to the pubes and the vertex to the sacrum. In these presentations the ears are originally placed toward the

* For we are directed to place the left hand blade behind the pubes, and the right hand blade between the child's head and perinæum, consequently in this presentation, the concave edges of the instruments will be towards the face of the child. Aph. ii. 7.

sides of the pelvis, and the head advances with them in this way, until it arrives at the inferior strait; consequently, in neither of these cases can the ear be felt "under the rami of one of the ischia," and are, therefore, turned toward the sides of the pelvis, before a part of the hind head has emerged from under the arch of the pubes. In labours of this kind, where the forceps may be necessary, what information for their use, can be derived from the aphorisms?

The other aphorisms belonging to this section are commonplace, but proper always be kept in remembrance; we have, therefore, only noticed those we deemed essential. Those of section III. though subordinate to the second, fourth, and seventh, of section II. are judiciously conceived and well expressed.

I will now dismiss this subject, which has already far exceeded the bounds I had prescribed to myself; if, sir, they come within your plan, they are much at your service.

I am, sir, yours respectfully,

WILLIAM DEWEES.

November 13th, 1804.

Observations on Dysentery. By the late FRANCIS BOWES SAYRE,
M. D.

AT length, my dear Sir, I have found time to attend to your request. It has, indeed, often occurred to my remembrance; but since I last had the pleasure of seeing you, the greater part of my leisure hours have been stolen from me in a manner which, though I cannot describe it, appears to have been unavoidable: even now, I cannot sit long enough to arrange and methodize my ideas: you will, I fear, find them "Ruda indigestaque moles." However, I thought if there was any thing peculiar, you would discover it, and select what

was worth remembering, as easily as if the most exact method had been preserved.

The situation of Bordentown is lofty, upon a narrow neck of land, washed on each side by two considerable creeks which empty into the Delaware. Along these creeks is a good deal of low ground, great part of which is regularly overflowed by every tide, and pretty generally covered with vegetable productions.

After a summer uncommonly dry and hot, the dysentery appeared in Bordentown early in August, during the whole of which month it continued to spread rapidly through the town; about the first of September it began to decline, and ended in the first weeks of October. The disease was absolutely confined within the limits of Bordentown, (except in one instance about two miles distant, of a young man whose business it was to cart wood, and who had frequently been into the town, the whole of September,) and the country every where was uncommonly healthy: not an instance of cholera; the remittent fever unheard of, and but very few cases of ordinary fever and ague.

Though the dysentery attacked indiscriminately all ages and both sexes, it was remarkable that among the fatal cases, four out of five were boys, from two to fourteen years of age. There were fewer slight cases than I ever saw among an equal number—almost every one that was seized, had the disease, especially on its first appearance, severely. Great debility of the stomach, weak pulse, great prostration of strength, coldness of the extremities, pale, sunken countenance, uncommon restlessness, brown tongue, a most distressing tenesmus, and, in some cases, difficult and painful micturition, were the most pressing and dangerous symptoms.

From the beginning of the disease, every substance, whether food, drink, or medicine, constantly aggravated the nausea, and was pretty certainly rejected. This circumstance deprived me of the use of some medicines which have been fre-

quently administered with good effect: had there been pain in the epigastric region I should have suspected inflammation.

The beginning of the disease was not, as is frequently observed, a disordered state of the bowels; universal lassitude, succeeded by slight rigors and a fever immediately supervening, marked the attack. The pulse, from the first was very frequent and very weak, the one seeming inseparably connected with the other: intermission and inequality in the pulsations might be discovered early in the disease, and were more remarkable in the progress of those cases which terminated fatally. The exacerbations of the fever observed a tertian type; there being every other day a remarkable increase of all the symptoms, which, contrasted with the intermediate days, gave to those days a fallacious appearance of amendment.

On the first days, the strength seemed withered as if by a stroke of lightning, marking the highly septic nature of the disease: the mind also suffered nearly in the same degree with the body. It was truly surprising to see the young and vivacious, suddenly deserted of all their sprightliness and fortitude, given up a prey to the most abject despondency. It would, perhaps, be difficult to assign a reason why this disease should peculiarly affect the mental faculty; but, in the cases before us, it could not fail striking the senses of the most inattentive observer.

Not only the extremities, but most parts of the body were deficient in natural warmth: the legs and arms especially, were cold from the beginning, and continued so during almost the whole progress of the disease. The skin, when pressed by the finger, so as to empty the subjacent vessels, remained white a considerable time, indicating a languid circulation in the capillaries. Over the whole body, but most remarkable in those parts which were coldest, was a clouded appearance, very much resembling the paler kinds of marble. I am not clear to which this ought to be referred, whether to the petechiæ or vibices, or if to either, as it does not exactly answer their description. From this state of the minutest vessels, I was induced

to try the effects of warmth, and in some cases encouraged a diaphoresis which it was always difficult to induce, and still more so to preserve for any length of time, owing to the almost constant necessity of the patient's rising. I could not observe that the sweating produced the least abatement of the malignity of the disease: the stools were indeed less frequent, but, in the same proportion, the anxiety increased.

Though the countenance was in every instance pale, it surprised me to see the little alteration produced upon the eye, which I do not remember to have seen in any other disease. Is it common for the eye, in dysentery, to retain its lustre until within a very few hours of dissolution?

The *anxietas præcordiorum* was from the earliest stage of the disease an urgent symptom, and afforded the worst presage. The patients complained of intolerable oppression—were almost constantly in motion, turning from side to side of the bed—now attempting to rise up, then falling back, spent with the fatigue of the exertion. No instance of delirium that was considerable: in some of the worst cases there was a picking at the clothes and a motion of the hand as if driving away flies, but the patient, whenever spoken to, was rational.

The tongue was at first whitish with a tinge of the yellow. Two or three days from the commencement of the disease, the tongue, very low down, appeared brown, which gradually extended to the tip, the colour darkening in those parts where it was first discoverable, and successively, until the whole became almost black and absolutely dry. Aphthæ were seen in several of the fatal cases. In those who recovered, deep fissures, extending through the brown crust and into the very substance of the tongue, rendered it exceedingly sensible to every irritation, occasioning much distress.

A thin discharge, of not much smell, resembling water in which meat had been washed, appearing very corrosive, excoriating the parts and occasioning violent and almost continual tenesmus, occurred in several cases. This kind of discharge I constantly found attended the most violent, and, too

frequently, fatal instances of the disease. In one instance, only, did I see those scybala which the celebrated Cullen has supposed the proximate cause of dysentery.

Having fully embraced the practice of Sydenham and Sir John Pringle, principally, because both were much versant in this disease, and wrote more with a desire of improving the science of medicine than of shining as authors, the method of cure I first attempted was to cleanse the *primæ viæ*, directing most of my attention to the state of the stomach and bowels. With this view I began the cure with an emetic given in divided doses and at long intervals, so as to insure its purgative effects. The discharge was commonly a vitiated bilious matter of a greenish colour: the sickness, however, was in no case alleviated; on the contrary, the stomach was always left in the same or even a greater state of disorder. In one or two of the earliest cases, from an idea that the continuance of this symptom might be the effect of impurities still remaining, I repeated the medicine, but the success did not justify the reasoning; the debility of the stomach was evidently increased by the medicine.

After the emetic I gave some mild purgative, in the choice of which I was allowed no very great variety, for, from the beginning of the disease, the stomach was unable to bear either Glauber's salt or the sal cathart. amar. though the taste were ever so artificially covered: castor oil was almost equally offensive to the stomach, and very seldom remained long enough to be of any use. Calomel, united with a small proportion of rhubarb, and the vitrum antimonii ceratum, were the only medicines I could avail myself of with any tolerable certainty. In the first cases I refrained almost wholly from the use of opium, depending principally upon "purging assiduously employed." It is with the utmost pain I am obliged to say that this method, supported as it is by the authority of the greatest, and I believe, most candid writers in medicine, though conducted with all possible circumspection, always dosing the medicine so as to act in the most lenient manner, produced little or no advan-

tage. Emetics destroyed the tone of the stomach, and laxatives hastened the progress of the disease by increasing the patient's debility.

Foiled in this mode, I adopted a new one which, though it did not succeed to my wishes, was more satisfactory than the former. I now treated the disease as a typhus fever, directing but little attention to the state of the bowels, which I began to consider as a pressing symptom only, to obviate which, I tried the force of injections, composed of some demulcent, with a liberal quantity of opium, but they were either discharged immediately upon the withdrawing of the pipe, or, at best, were never retained above a minute: in two cases, I repeated them half a dozen times in each, in hopes that the opium might moderate the irritability of the rectum, and that perseverance would at length obtain the end desired. The tenesmus was increased by every attempt, the parts being so much excoriated as to occasion the most acute pain in the operation, to which cause, principally, I attributed the failure of success.

If I were to judge from my own particular experience, I should either condemn as pernicious, or disregard as useless, the application of blisters. In four cases in which I used them, I could discover no sensible benefit, and they certainly must add something to the sufferings of the sick. The blisters were in all these cases applied to the hypogastric region.

Believing it unnecessary to give you a detail of every particular remedy, I here conclude this account, but not without assuring you with what warmth of affection,

I am, esteemed Sir,

Your much obliged, and very humble Servant,

FRANCIS BOWES SAYRE.

DR. BENJAMIN RUSH.

Croswicks, 20th December, 1792.

On the Efficacy of Olive Oil as a Purgative, after the ineffectual Trials of more active Remedies.—Also, an Account of an Inter-mittent, cured by nasal Hemorrhage; and of a chronic Inter-mittent suspended by a Scald. By DR. JOHN VAUGHAN.

WILMINGTON, February 4th, 1805.

SIR,

IF you deem the following cases worthy of a place in the Medical Museum, they may, probably, not be uninteresting to your readers. Though theories entertain and instruct, we are often, in practice, disappointed in the operation of medicines. Peculiar states of system, frequently preclude the use of remedies which would otherwise promise the most success.

Mr. ———, aged 50, has, for ten years, been subject to occasional attacks of the cholic, with obstinate constipation of the bowels. On the 15th ult. I was called to him, and found him excessively distressed with flatulency and tormina, and frequent vomiting. He had, previously, taken two ounces of sulphate of soda, an ounce of castor oil, and a considerable quantity of manna and senna, without effect. His pulse being rather full, and apprehending inflammation, I drew a few ounces of blood, and commenced the use of purgatives and active injections. In the course of the following night, a dark coloured matter, of a suspicious appearance, was discharged by vomit, and my patient expressed himself sensible of inverted peristaltic motion, commencing low in the left hypogastrium, which excited apprehension of intussusception or iliac passion. The alarming condition of my patient, produced the most unremitted diligence in his attendants. Cathartics of different kinds and in varied forms were assiduously given, and enemas of salts and senna—of assafoetida—of carminative teas with ol. ricini—of tobacco, &c. were frequently exhibited, and fomentations applied to the abdomen, with but little effect. A respite from the more urgent symptoms was, however, obtained for two days, when the tormina and vomiting returned.

Medicine seemed only to irritate the primæ viæ and increase his distress; and, while pondering on the use of quicksilver, it occurred to me that, perhaps, olive oil from its bland taste and aperient quality, might not offend the stomach, and, if given in frequent doses, might eventually glide through the intestines. Accordingly, half an ounce of salad oil was given every hour, alternated with injections of fennel-seed tea and castor oil. In six hours, considerable relief was obtained and several discharges procured. For two days my patient appeared convalescent, but incautiously taking three of Fothergill's pills, as a *simple laxative* (though composed of colocynth, aloes, scammony, and calx of antimony) he suffered a return of tormina and vomiting; but two ounces of olive oil, at one dose, and two or three injections, effectually cured him. The oil passed through the bowels unmixed with feculent matter, and he was speedily restored to health.

It is, at the first view, somewhat irrational to suppose that so mild an aperient as olive oil should prove cathartic, when the routine of active purgatives have failed; but it was suggested by the circumstances already mentioned, and its utility was proved by the event. I should certainly have given the quicksilver, had it not been for the unpleasant reflections of the relatives, in case of an unfavourable event. Though no consideration should counteract the use of remedies, offering, even, a probability of success, in desperate cases; yet if the object can be attained without aggravating the distresses of relatives, already great enough, the more agreeable alternative should be chosen.

If quicksilver operate only from its weight, it is an inoffensive remedy, in case it pass the bowels; but the same weight, which would overcome serious obstruction in the intestinal canal, might, in case of insuperable resistance, force its way through the coats of the bowels. Whether the olive oil would prove equally successful in a second case or not, is difficult to determine, and though the use of any article, in a single case;

is not to be relied on as a general remedy, yet it is worthy of future trial.

Case of Intermittent Fever cured by Nasal Hemorrhage.

Mrs. ———, while labouring under an obstinate intermittent fever, in the seventh month of pregnancy, was attacked with nasal hæmorrhage, which resisted all the usual remedies, and was finally stopped by sponge forced up the nostril, so as to press on the mouth of the ruptured vessel. In five days, she was supposed to have lost four pounds of blood, which effectually cured her previous disease.

Bloodletting is often useful in intermitting fever, but it was the excessive discharge in this case, inducing a different diseased action, which banished the febrile disorder.

Case of Chronic Intermittent, suspended by a Scald of the Foot.

A girl, who had had a chronic periodical fever for several weeks, accidentally scalded her foot, which remained sore for two weeks, and during this period she was freed from fever; but, when the ulcer healed, her fever returned. It is not improbable, but if the ulcer had been kept open a fortnight longer, or an epispastic added, in this case, the cure would have been completed.

I am, Sir, respectfully,

Your Friend and humble Servant,

JOHN VAUGHAN.

DR. JOHN REDMAN COXE.

Account of a Case of Intermitting Fever, cured by a copious Bleeding from the Nose.

STRASBURG, February 27th, 1805.

DEAR SIR,

I AM prompted to relate a case of intermittent fever, for your Museum. The son of Mr. I. M. aged fifteen years, was attacked in the month of August, 1804, with a violent intermittent. The father not being fond of much doctoring (as he expressed himself), an emetic only was used: the disease continued about three months, with daily paroxysms, during which time, the patient became much emaciated, when a nasal hæmorrhage intervened, and I was called upon to save the young man from bleeding to death.

Being made acquainted with his situation, I suffered the hæmorrhage to continue, until three pounds and an half of blood were lost in three days, the last of which would have scarcely tinged a linen cloth. The patient from this time recovered rapidly, without a return of the disease, notwithstanding relapses were more common last season in this neighbourhood, than had been hitherto known.

From, dear Sir,

Yours, sincerely,

JOSIAH ANKRIM.

How is it that tonics and depletives produce the same effect? This may deserve some consideration.

TO DR. JOHN R. COXE.

Some Observations on the Introduction and Progress of the Small Pox, at Dumfries (Virginia) during November and December 1804, and January 1805, accompanied with further Evidence in Proof of the prophylactic Power of the Cow-Pock: communicated in a Letter from DR. JOHN SPENCE, to the Editor, dated, Dumfries, March 30th, 1805.

THIS day received a Richmond newspaper, entitled the Enquirer, dated the 28th instant, in which I find the following extract from the London Monthly Magazine for December 1804, under the head of "Notices of Works in hand to be published:"—"Mr. Goldson of Portsmouth has made several experiments to ascertain the effect of vaccination in the hand, and has uniformly produced a vesicle distinctly different from that, from the same matter in the arm, having every resemblance both in respect to size and the peculiar *blue* tint to that, which takes place in the casual disease. The result of these experiments, with further facts and observations on *small pox subsequent to vaccination*, will be sent to the press in a few days."

From this notice it would appear that a second attack is meditated by this gentleman against the efficacy of the cow-pock; but if it be as feeble as his first, the friends of vaccination have little to dread. But when so much uneasiness is excited by these attempts in the public mind, and so much clamour raised against one of the greatest discoveries ever made in the healing art, it is certainly the duty of every real friend to the new practice, to step forward promptly with such additional evidence, as he may possess, in its favour. I therefore beg leave to submit to your consideration, the following statement of facts.

When I applied to you about the beginning of last winter for a supply of vaccine matter, I informed you of the alarm excited in this town and its vicinity by the sudden and unexpected appearance of the small pox. A runaway negro belonging to a gentleman in this county, was brought here from Phi-

Philadelphia early in November last, and confined in the jail of this town. He was soon afterwards taken very ill, and from the violence of the fever, and the pains he complained of, the physician who attended him, supposing that these inflammatory symptoms proceeded from a severe cold, directed bleeding and the usual antiphlogistic remedies; for there was no suspicion of the disease being the small pox, until the eruption had assumed its characteristic appearance. The disease proved to be of the confluent kind, and terminated fatally about the fourteenth day. Although this patient was confined in the upper story of the jail, and great circumspection observed to prevent all intercourse with him, a negro girl living in a family adjoining the jail, broke out with the small pox about the middle of December, upon which a meeting of the magistrates was summoned, who, notwithstanding the extreme inclemency of the weather, ordered this girl, with the whole family, to be removed to a solitary house in the country, and directed a physician to attend them. The children of this family were there inoculated with matter taken from a pustule of this girl, and passed through the small pox very favourably. About ten days after this, information was brought to town, that another negro man, who had been hired here, but who declared he had had no communication with the jail or any infected person, broke out with the small pox, when on a visit to his master's plantation about seven miles from this place, and excited thereby a degree of consternation among the inhabitants of that neighbourhood, which is undescrivable. On this plantation (the property of Mr. Storke) there were more than thirty persons, all strangers to the small pox, except Mrs. Storke, the mistress of the family, a lady considerably advanced in years. During the summer of 1802, when vaccination was prevalent here, two negroes of Mr. Storke's, anxious to be vaccinated, had the operation performed, and passed through the disease without the knowledge of their master. Fortunately one of these negroes was the mother of the man who was attacked with the small pox. This woman attended her son day and night

during the whole of the disease, which proved severe, and was assisted at all times by the other negro who had passed through the vaccine. Both of them were not only thus exposed to the variolous contagion, during every stage of the disease, but were also inoculated with fresh matter taken from the patient they nursed, without its producing any effect. These striking cases of the preventive power of the cow-pock soon spread far and wide, and had the happiest effects in making converts to the new inoculation. Mr. Storke and his whole family were immediately vaccinated with some of the virus you sent me, all of whom passed through the disease in the mildest manner. From his plantation, the vaccine inoculation was conveyed to the neighbouring ones, and is still carried on in that part of the country with every degree of success that could be wished for.

On the removal of the infected family from town, by order of our magistrates, it was fondly hoped by the inhabitants that no further danger was to be apprehended from the small pox; but this hope was of short duration; for on the 30th of December, it was ascertained that the disease had broke out in the natural way in the family of Mr. Adams, whose house is situated nearly in the centre of the town. How his daughter, a girl of about thirteen years of age, caught the contagion, has never been accounted for, and the numerous pustules with which she was covered, had advanced considerably in their progress, before the nature of the eruption was discovered, for her parents, fearful of being compelled to remove their family from town, at a season of the year so unusually rigorous, carefully concealed her disorder. Early in the ensuing month, her brother, who caught the contagion from his sister, also broke out, had the disease in the most malignant form, and died. From the extreme anxiety of these parents to conceal the small pox, an anxiety proceeding, no doubt, from the rigour of our laws, no medical aid had been called in, until this boy's life was despaired of: at that time, two black children in the kitchen were inoculated for the small pox by one of the family, and passed safely through the disease. Since that peri-

od, which now nearly exceeds nine weeks, no cases of small pox have occurred. Of the five persons who had the small pox in the natural way, *two* died; *seven* children were inoculated for the small pox, some of whom had a heavy eruption, but all recovered.

Having given this brief history of the introduction and progress of the small pox among us, I shall now add a few words on the mode in which vaccination was conducted.

On the 22d of December, I succeeded in exciting the genuine vaccine pustule from the crust you had the goodness to send me, in a family where there existed the greatest danger; I mean in the family of the deputy-sheriff, whose duty it is to superintend the jail, to supply the prisoners with provisions, and who, from the necessary intercourse that took place between his servants and the deceased runaway, was very apprehensive of the small pox. From this source we had abundance of the fresh transparent fluid, and the new inoculation spread rapidly. But the solicitude for vaccination was displayed most remarkably, on the appearance of the small pox at the house in the centre of the town, as has been already stated; for then, those who were indifferent about it in 1801 and 1802, and even many persons who still had doubts of its efficacy, eagerly embraced the opportunity now offered.

Although the small-pox prevailed in this town and its neighbourhood, more than two months, there did not occur a solitary instance of a vaccine patient having been seized with that disease, either when tested by inoculation or otherwise; and it is proper to observe, that no variolous inoculation has been permitted in this quarter, since the spring of 1791, a lapse nearly of fourteen years.

But, as repeated exposures of vaccine patients to the natural small pox, may have greater influence with some than simple inoculation with variolous matter, I beg leave to select a few well attested cases. The first case which occurred, and which made considerable impression, was that of a blacksmith who was employed to remove the irons from the runaway, in jail,

when covered with pustules. This blacksmith was vaccinated in 1801, and though thus exposed to the effluvia of the variola, resisted the contagion. When the small pox raged at the house of Mr. Adams, his son-in-law Mr. Weaver, who had his family vaccinated, partly in 1801, and partly in 1802, took advantage of the present opportunity to test the efficacy of the cow-pock. He sent his eldest son and daughter, the one about ten, the other about twelve years of age, to visit their relations. They were at Mr. Adams's at all hours of the day; lay on the same bed with the boy who had the disease in the confluent form, and even saw him put in the coffin, when the corpse was in a putrid state. Mrs. Wort, sister to Mrs. Adams, also sent two of her children about the same time and with the same intention; though they, as well as Mr. Weaver's were day after day in the very focus of contagion, yet all of them escaped with impunity. The next cases that occurred were the black servants of Mr. Gilbert, who lives but a few yards from Mr. Adams's. These servants had the freest intercourse with their neighbours, the small pox patients, visiting them on purpose to take the disease if possible, but in vain.

Of the vaccine patients who were subjected in the above experiments, either by inoculation with variolous matter, or repeated exposures to the natural small pox in its most malignant and hideous forms, *seven* had been vaccinated from the stock of virus transmitted by Dr. Waterhouse to the President in the summer of 1801, part of which was obligingly forwarded to me by the President's physician, early in October in the same year. In Dr. Waterhouse's second publication on the kin-pock, I have stated that from this source we carried on, without intermission, vaccination in this town and its neighbourhood, from October 1801 to December 1802.

Of those who were vaccinated with the limpid fluid obtained from your crust, *three* were subjected with impunity to the test of the small pox, and at the time the experiments were made the scabs were adhering to their arms.

When the small pox broke out here, Goldson's cases were known, and rumours, extracted from English prints, were cir-

culated in some of our newspapers, to the injury of the Jennerian inoculation, and so much credited, that I believe (had it not been for the presence of the small pox), vaccination could not at that time have been carried on here to any extent by the most persuasive physician. The interesting cases and deductions from these cases published in support of the prophylactic power of the cow-pock, by the Vaccine Institution of London, together with hundreds of similar cases of equal dignity, on record in Europe, would not have had the effect to which they are so justly entitled. "So true it is, that people are unwilling to believe what happened a great way off, or a long while ago."

These considerations will, I trust, plead my apology for the foregoing minute statement of facts, and also justify me for the liberty I have taken in mentioning the names of persons of credit and respectability, who can authenticate these facts.

I have now the satisfaction of adding, that in this part of Virginia the most unshaken confidence is now reposed in the protecting power of the cow-pock: so universally, indeed, has the new inoculation been adopted here, that I am confident there are not in this place, which contains upwards of a thousand inhabitants, a dozen children who have not undergone the vaccine, so that we believe our small town is at present as completely sheltered from the ravages of the small pox, as any town in the old or new world.

I cannot conclude this letter without again tendering you our warmest thanks, for the promptness with which you supplied us with the vaccine at a time, when the sudden introduction of the small pox here, inspired so much horror; and it is but justice to add, that the friends of vaccination and humanity throughout the United States, are under singular obligations to you, for the able and decisive manner in which you came forward in your valuable Museum, to stem a torrent of incredulity, and guard truth against the shafts of ignorance, prejudice, and scepticism.

History and Dissection of a Case of Clonic Spasm. By ELIJAH GRIFFITHS, M. D. of Philadelphia.

MARCH 22d, 1805. Mrs. Cristine consulted me in the case of her daughter Ann Cristine, between the age of nine and ten years.

The patient has complained of head-ach, and a pain in the stomach for a long time; but about three weeks ago, these complaints left her, when certain unusual gestures, sudden startings, and hysterical symptoms came on, and have since increased to a very alarming degree.

From a suspicion that worms were the cause of the symptoms, I directed calomel and jalap, in small and repeated doses, with the application of strong sinapisms to the feet.

23d. The sinapisms were not applied; the purge operated briskly without expelling any worms. She was restless, rather thirsty, had very little sleep through the night, and is thought to be worse than yesterday. The patient is sitting up, but so affected with clonic spasms, as to give her a very unusual appearance. The pulse is natural, except rather frequent; skin as in health; tongue free from fur, and moist; eye perfectly natural.

She has very little appetite, but experiences neither sickness nor pain from the disease.

She was directed to take nitre, calomel, and tartar-emetic, in nauseating doses, and to apply blisters to the wrists, in the evening.

24th. The blisters have drawn well; the medicine has been continued, but without any alleviation of the symptoms; she has passed a sleepless night, without any sensible change since yesterday, except a considerable aggravation of the spasms.

The senses, the faculties, and operations of the mind, are as free from disease as ever they were, while the muscles of voluntary motion, have nearly thrown off all allegiance to the will.

The patient was directed to omit the last medicine, and take pulv. rad. valer. ʒss. every third hour, as an anthelmintic and nervous medicine. The symptoms increasing in the evening, she was ordered gum. fœtid. gr. iv. every third hour, and to apply a blister over the whole head. From the agitated state of the patient, the blister could not be applied; cups to the temples and back of the neck were substituted for it.

25th. Patient did not sleep any last night; was so restless as to require an attendant to hold her in bed: by lying constantly on her back, the skin is so fretted as to cause great distress. The pulse is weaker and more frequent than yesterday; eye a little inflamed, tongue moist and natural, skin cool, &c. The spasms have increased so, that the eye-ball is constantly rolling, tongue thrust out frequently, face distorted, teeth gnashing so as to cut the tongue and cheeks; and, in short, every unusual gesture is performed by the head, trunk, and limbs, that a horizontal position will admit of.

The warm bath was directed, and a strong infusion of spigelia Marylandica with fenna. The bath relieved the spasms, but its effects soon went off without any benefit from repetition. The medicine moved the bowels several times, with no other effect than bringing away one worm of the lumbrical kind. In the evening, opium gr. i. was given, and repeated every two hours to procure sleep and relieve the spasms.

26th. Six grains of opium were taken, without procuring sleep or any alleviation of the symptoms; was sick at stomach, with slight delirium in the night. The pulse is more frequent and weak than yesterday, with an evident aggravation of the spasms. The warm bath was repeated without any salutary effect.

The patient is directed to take ol. succin. gt. vi. every two hours.

27th. She has passed a sleepless night, and I think her in every respect worse. Articulation very indistinct, and deglutition difficult. Ordered wine to be given freely, and continue ol. succin. gt. x. every hour. At night she took opium gr. ij.

every half hour till eight grains were taken, when her attendants thought she was worse, and it was omitted.

28th. The patient is more composed than before, but it evidently results from debility. She has not slept two hours the last five days and nights, and besides, has taken very little aliment within the same period.

She expired at three o'clock, P. M. apparently in her reason, and without a struggle.

29th. I examined the brain of the deceased, in the presence of Dr. Meredith, who assisted me. On removing the cranium and dura-mater, the parts below appeared natural, the ventricles had very little water in them; in short, the brain was as free from disease as any I have ever seen dissected.

I regret not having examined the stomach; however, that organ exhibited no signs of disease, at any period of the complaint, so as to justify a belief that the cause existed there, in the form of spasm, or inflammation; and even had there been inflammation found, the medicines given might have been considered as the cause of it. On the day of the patient's death, her mother informed me, she had been very much terrified by a man intoxicated, about the time the disease commenced; and this was thought by the patient, to have been the cause of her complaint. Be the cause what it may, the spasms were violent, but altogether clonic.

*On the Nature and Effects of Syphilitic Agonorrhœa. By DR.
FELIX PASCALIS, in a Letter to the Editor.*

SIR,

IF you will do me the favour to admit into your valuable Museum, the following remarks on syphilitic *Agonorrhœa*,* which have been drawn up with a diffidence commensurate with the novelty of the subject; and if it can furnish hints enough for a clear and satisfactory investigation of that complaint, to some abler and more experienced physician, I shall feel myself highly gratified.

Yours, respectfully, &c.

PHILADELPHIA,

FELIX PASCALIS.

February 15th, 1805.

A GENTLEMAN from one of the southern states applied to me five years ago, for medical aid in his complaint, which he called nervous, and which he described very confusedly; for “he never was sick,” said he, “but he never was well.” His emaciation and debility, with a remarkable dryness of a much wrinkled skin, were so visible, as to give him the appearance of declining age, although he was 45 years only. A few of the gratifications of the senses remained to him. He slept little indeed; he relished no kind of nourishment, and his eye-sight was fast failing. To relieve his uneasy sensations, he was obliged to resort to the use of spirituous liquors (which he disapproved of very much), and also to high-seasoned meats, by which means he could relieve the deadly feelings arising from

* The addition of the Greek negative *α*, to that old technical name is obvious: but I regret that the whole of it is incorrect; *γυνή semen*, should be exploded, with the belief of the ancients, of the nature of that disorder. Σιφνί@, or Siphno, the island of impures, might give a better and more correct idea, by calling it *siphnorrhœa*, or *asiphnorrhœa*.

his abdomen. By all accounts, indeed, his stomach, kidneys, and bladder seemed to be the seat of numbness and slight pains. Great flatulencies incommoded him very much. Above all, he feared a kind of gravelly disorder, for he constantly was subject to a troublesome dysuria. No better account could be given to me, although I urged as many questions as chronic and symptomatic causes might suggest, and, what reduced still more for me, the chapter of conjectures, was the perfect state of health of his amiable family, composed of a wife and five children, and his absolute forbearance of any kind of excess or debauchery during the last five years, to which he had, however, been exposed before that period. He remembered that having participated once in convivial liberties, he had been thrown among impures; but no foul disorder was contracted, as he was well convinced, by having not known any of the usual symptoms, and by medical authority. He was aware, notwithstanding, that his miseries had begun from, and continued since, that period.

I begged to have time to consider a case very singular and obscure in its diagnostics; and this I protracted; yet, as I found I could not remedy it, unless by means repugnant to a patient prejudiced against any suspicion of an existing venereal disorder, I determined at last upon a mode of treatment, without certainty, or any facts whatever in support of the opinion I had formed of the disease. At first a bougie was introduced into the urethra with much facility, and with as little pain as if the parts had been palsied, except under the prostate, where a little pressure was requisite to penetrate into the cavity of the bladder. Warm bathings, a mild and reduced diet, with two nitrous and mercurial doses, were all the prescriptions to be observed each day; and after this method had been pursued five days, the glans appeared tumefied, the urethra became painful, and the usual dysuria far more distressing than before. This state I could not keep up much longer after the bougie had been introduced five or six times, as a violent chordee with copious and puriform discharges took place, which in a

few days I was obliged to counteract by bleeding and other usual remedies. That the matter had a degree of venereal acrimony, I had the proof, as it excoriated the glans; and, that it answered perfectly to the critical secretion of the infected membrane of the urethra which constitutes a gonorrhœa, I thought was obvious by the quality and successive colours of the discharges. With a gradual abatement, however, and alteration, the complaint became a simple gleet after twenty days, and in ten days more, it perfectly subsided, and the patient gradually recovered his former and youthful health. I had the opportunity to see him again a year after, when he confirmed by his bodily appearance and by his candid accounts, the absolute cessation of his *nervous* and formerly distressing sensations.

There appears no difficulty, Sir, to explain such an extraordinary case, if we advert to the idiosyncrasy of the subject, in whom, the parts affected could never be raised up to that degree of inflammation which is necessary to promote suppurative discharges, by the sole irritation or stimulus of the existing virus. The same want of inflammation has been observed sometimes in large wounds, in fractured bones, and even in felons and whitlows, which thereby are aggravated and attended with terrible effects, especially on the nervous system. This is, I believe, the best scale to go by, when we must judge of the extent of a morbid stimulus. Thus the tetanus and chorea Sancti Viti, are now easily traced to deep lacerations, contusions, or morbid causes that are deprived of inflammation, or *digestive resolution*. These general observations render it very probable, that with the same circumstances, an impure connection may constitute an *agonorrhœa*, with a dreadful reaction on the nervous system. A few facts more must be sufficient to establish this doctrine, and these have not been wanting to me after five or six years of observation on that very subject. Medical inquiry, indeed, to be useful, requires only that we should hold such grounds or principles as we may reasonably apply to facts as they occur. Among these, and in three instances which I should think too tedious to describe, the same cause and the

same effects were illustrated; and in others, I moreover, remedied or abstracted the inflammation of the virus from more delicate parts, such as the prostate, the testicles, &c. by fixing it in the urethra. It was with the obvious success of an artificial irritation in certain cases, that the celebrated *Daran*, of France, supported the discovery of his bougies, and pretended, that, with certain ingredients, they were a specific remedy for gonorrhœa: indeed any thing that promotes a discharge from the urethra, is finally, the best known remedy of the cause and of its symptoms. But unfortunately, *Daran* gave out his remedy as a quack, and indiscriminately, for any degree or stage of the complaint; he resembled *Sanctorius*, who having discovered the insensible perspiration, published his aphorisms to cure all diseases by sweating. Thus a good remedy is often discredited by being too often misapplied.

Let us illustrate, however, by further observation, both the remedy and the true existence of a syphilitic *agonorrhœa*.

I. Whether the irritability of the membrane of the urethra is, *sui generis*, or whether it is but a *quantum* of that, which, by our Maker is wisely distributed to all our organs, although in different degrees, it appears that it can be increased or entirely destroyed. Thus, when it is accumulated, during the act of generation or erection, it can hardly bear the presence of urine, and will suffer no inconvenience from that of the semen. On the contrary, it may be easily overcome by frequent contact with bougies, catheters, or even of acrid fluids administered in injection, and will not be affected with the least pain or uneasiness. From this we may infer, therefore, that however stimulating the venereal poison must be, when applied to the mucous membrane of the urethra; circumstances in the constitution may have diminished the *quantum* of irritability of those parts, or such a length of time may have elapsed before an inflammation could be determined, that the morbid action has become habitual, and no puriform secretion can be afterward effected, unless it is excited by artificial means, or by the addition of any stimulus whatever. I confess, Sir, that the presence of a con-

tagious poison thus rendered latent, inactive, and free from its impending and deleterious effects, without ever being exhausted or altered in its virulence, and that, during the space of many years, is a phenomenon incomprehensible; yet it is evidently proven and inferred, from the known and similar effects of other specific and contagious poisons, from that of the terrible hydrophobia, to the mild virus of the vaccine: for we are indeed apprised, that although they must be severally brought into action within a certain period of time, this has been found variable, sometimes much shortened, as in the confluent small pox, and sometimes protracted to six months, one year, and even twenty years, as it has been ascertained of the hydrophobia. But another difficulty is in the way; it is that of conciliating the inactivity of the poison thus received, with its singular effects on the constitution and nerves, as exemplified in the above mentioned case of *agonorrhœa*, and by still more dreadful affections, such as mental derangement, as I have seen in the infectious operation of other deleterious causes! why, if there exists an irritating or morbid principle, it does not follow from its being latent and inert, that it should not affect the general and animal irritability, even to the utmost degree. Thus, a nail has deeply wounded the foot; the pain is gone, no inflammation appears, but the tetanus takes place! A girl of the age of thirteen years was once exposed to the small pox by infection, and received it, when the most severe attacks of epilepsy ensued, as it were, by tertian paroxysms; they baffled every remedy during two weeks, until the worst kind of small pox broke out, from which she recovered with difficulty, but the epilepsy never took place again. We have it here, and in numerous instances well known to medical philosophers, demonstrated, that while a contagious poison is rendered inert, and while the peculiar operation which belongs to itself is suspended, the morbid cause has yet a great power on the general system of irritability, that is to say, on the nerves. I am happy to find a theory to support this physiological law, masterly explained by

Xavier Bichat, who in his division of *animal* and *organic life*,* evinces in the first, the relations and connections of each organic part with the brain and the nerves, independently of their private functions, assimilations, secretions, and excretions; but if these are impeded and suspended, a state of perturbation is introduced from the system of organic life to that of animal life. "Without secretion," says he, "no digestion—without digestion, no nutrition—without exhalation, or without excretion, no absorption." Hence the tumultuous effect on the centre of all animation and circulation, when a deleterious or morbid cause cannot be digested, eliminated, and resolved: hence, no doubt, the syphilitic poison received on the membranes of the urethra, produced the long continued miseries and strange situation of the above subject.

II. I wish to be understood that the use of bougies in the case of *agonorrhœa*, seems to me preferable to injections, or to any other kind of artificial stimulus, because, it appears to me the handiest, and better calculated to excite a sufficient degree of inflammation. It has besides, the double advantage of remedying other local affections, should they exist, as obstructions, strictures, gravel, &c. I have found that the common compound bougies, provided they are of a sufficient consistency, answer much better than the elastic ones, because the ingredients with which they are made, are perhaps, more irritating when heated by the parts, and perhaps decomposed. The bougie when introduced into the bladder, does not require to be left any length of time, nor to be used more than once a day, and for five or six times, after which, I rarely failed in obtaining the desired effects. Should no inflammation occur, the case must be different, and the bougie by frequent introduction, becomes as little irritable as the schneiderian membrane of habitual snuffers. Any other remedy which can be adapted to the circumstances of the case, I need not mention; as no particular rule of their exhibition could be determined, and should be left to the judgment of practitioners.

* Recherches philosophiques sur la vie et la mort.

Observations on the occasional injurious Effects of Leeches. By
JAMES STUART, M. D.

PHYSICIANS observing the bites of leeches to be occasionally followed by troublesome inflammation, ulceration, and gangrene, have attributed these to some venomous quality of the insect. But, as the precautions founded on this opinion, have proved ineffectual in obviating the evils noticed, the opinion may be justly suspected to be fallacious.

Though the species of the leech be considerably numerous, there are but three which will stick. The snail tailed, the broad tailed, and the large brown leech with a reddish belly. The first adheres tolerably well; but growing only to an inch in length, they cannot be employed to any advantage. The second grows to an inch and an half; but from an uncertainty in his functions, always gives place to the large brown leech, which last is, at this time, the species most generally employed in medicine. This, in common with the same family, has the general figure of the worm, and grows from two to four inches long. The body is composed of rings, which supply the power of contraction and of swimming. The skin on the back is blackish, or brown, bespangled with minute yellow spots, which, as it approaches the sides, is bordered with a narrow streak of yellow. From this last, the belly is of a reddish colour, and interspersed with a number of yellow spots. His head is small. But that which claims our attention most particularly, is the structure of his mouth. This is of a triangular figure, and composed of two lips, which are made to conform at pleasure, to the convenience of the animal. Within these are situated three solid teeth, so sharp and strong, that, they are capable of piercing the skins of men, or even those of horses, or oxen. A little posterior, is observed a small protuberance, answering, in appearance, and most probably in use, to a tongue, which, when flaccid, very exactly closes all the

cavity within the teeth. With this structure of the leech, his thirst of blood is proverbial. Hence Horace,

*Quem vero arripuit, tenet occiditque legendo,
Non missura cutem nisi plena cruoris hirudo.*

Whether accident or design has presented him with his prey, the first care of the leech is to prepare an opening for the exit of his favourite repast. This is done by inserting his three fangs into the skin. Next, withdrawing these, he closes his lips round the wounds and retracts his tongue farther into his mouth, so as to produce a vacuum. By which means, the weight of the atmosphere being removed from the blood-vessels embraced by his lips, while its force remains the same on the parts without, the blood is forced into the mouth so strongly, as to fill his twenty-four little stomachs, containing in the aggregate from two to three drachms of blood, in the short space of a few minutes.

From what has been said, it appears there is but one species of leech commonly employed for medical purposes. From hence it follows, the opinion that the bad effects from their bites proceed from the quality of the leech, must be erroneous. For, this being admitted, to suppose these are induced by a venomous quality, is to suppose, that some individuals are endowed with a quality with which others of the same species of animals are not; which would be absurd. I am aware, it may be said that this noxious quality of the leech is adventitious, and that it depends upon the qualities of the waters from which they are taken. But this supposition, still, does not solve the difficulty; for as they are all kept a considerable time before use, in clean water, and this often changed, their supposed poisonous qualities, were they adventitious, must be washed off, and we, consequently, should never witness any bad effects from their bites.

The fallacy of the generally received opinion, further appears from the organization of the insect. For, as the teeth

are destitute of punctures in their points, they are not calculated to the introduction of any substance into a wound. And, were it even possible any poisonous particles should adhere to the teeth, and be introduced with them, as the animal feeds by suction, its very functions, joined to the constant efflux of blood from the punctures, must prove a certain preventive to these particles remaining long enough to produce any mischievous effects.

Much more might be said, but as this is deemed sufficient to prove that injurious consequences from the bites of leeches cannot depend upon any innate or adventitious quality in them, I shall dismiss the subject, and proceed to inquire, on what these consequences do depend.

I attribute them to the state of the system, or to that of the particular part, to which they are applied.

I conclude this to be the case,

1. Because, the effects mentioned, never occur, except in such cases as evidence the presence of a morbid diathesis, general or local, in the part to which they are applied.
2. Because, they frequently do occur where such diathesis exists.

Of the truth of the first of these positions, we have daily proofs in the application of leeches in ophthalmia, where the disease is topical and they are not applied immediately to a part under inflammation. In this case, bad effects never succeed.

Cases of inflammation, ulceration, or gangrene, from the application of leeches in a general morbid diathesis, or immediately to a part under disease, have occurred under the observation of almost every practitioner who has ever been in habits of employing them.

I have witnessed many; the following of Capt. R. A. mentioned in Vol. I. No. 2. communication the 10th, of the Philadelphia Medical Museum, seems, to me, one of the most impressive, and well calculated to my purpose. In this case the diathesis had a strong tendency to gangrene.

When I first saw him, on the 31st of July last, a partial sphacelus had taken place in one of the nates, and the cellular membrane of the perinæum was destroyed. The scrotum was nearly divested of cuticle and much tumefied; but, as I understood, had subsided since the attendance of Doctor Rush. I was informed blisters had been applied to the scrotum and to the parts affected with sphacelus on the 29th, when the Doctor was first called in; and leeches to the scrotum on the 30th. August 1st, there was an appearance of gangrene on the scrotum.—August 2d, appeared several sphacelated spots, the size of the finger nail, immediately *on the parts of it to which the leeches had been applied*. The same day they were punctured with a lancet. August 3d, the sphacelus had extended so far as to destroy nearly one half of it. On the same day, in concurrence with Doctor Rush, I removed with the knife, several large portions of sphacelated skin and cellular membrane from the nates and perinæum. On the 4th I laid open the perinæum, in its whole length, from near the anus to the scrotum, down to the urethra. The 6th I removed with the scalpel, *all that part of the scrotum to which the leeches had been applied*, being nearly one half, down to the testis.

The leech produces the injuries here noticed, by the formation of a vacuum on the part to which he is applied. By this means, the usual support from the pressure of the atmosphere being removed from a part of the system, while it remains the same on other parts, the tone of the part under the influence of the leech is diminished, while, at the same time, and by the same causes, that of the latter is relatively increased.

And hence arise two most certain and active predisposing causes of inflammation, a general increase of tone and a local debility.

From this view of the subject, I conclude that bad consequences are to be apprehended from leeches,

1. When applied in an inflammatory diathesis before general bleedings have been performed.

2. In a general gangrenous diathesis,

3. In an extremely irritable habit.
 4. And last, to a part actually affected with inflammation, ulceration, or gangrene.
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History of a Case of Palsy, cured by Lightning. Also, Minutes of a Case of Yaws : in a Letter from DR. THOMAS HUMPHREYS, of Lynchburgh, Virginia, to DR. BENJAMIN RUSH, dated Nov. 1st, 1803.

MRS. Susanna Wiatt, of the state of Virginia, and county of King and Queen, a lady of great respectability, family, and fortune, informed me, that about the 49th year of her age, while on a visit at some distance from home, a considerable fall of snow took place, followed with hail and sleet, accompanied with ice; next day the weather being somewhat settled, on her return home, her carriage broke down, which occasioned a walk of near ten miles, and took her part of two days to accomplish: on her arrival at home, she found herself in a profuse sweat, but next day felt chilly all over, nor were her friends able, from every possible exertion, to restore her natural warmth; she felt herself in a very great deal of misery, and notwithstanding medical aid being called in, and her health partly reinstated, yet her pains in a short time became exceedingly severe, and in less than a year, she partly lost the use of both her arms.

An eminent physician, Dr. John Brockenburry, of Essex county, Virginia, being called to attend her, among other parts of his treatment, electrified her once a fortnight, and sometimes twice in a week, for two years, without any other apparent advantage whatsoever, than that of deriving a mere temporary relief. Three years having now expired; in the course of the fore part of the summer, she was more frequently electrified than before: some time in the month of

July, about 3 P. M. being in a lower room in the dwelling-house, one of her sons and two negro servants being also present, (the atmosphere at that time being heavily charged with electric matter), just as she got up from the dinner table, and had reached the side of a bed that stood in the said room, a sudden and violent explosion took place. She was instantaneously struck down, and fell motionless across the bed.

The bushes that were in the chimney were burnt, and several dead birds were found there; all the plastering in the inside of the chimney was stripped off, reduced to a very soft consistency, and was spattered all over the room: so hot was this soft mortar, that whatever part of the negroes skins it was dashed against, was immediately blistered. There was also a large round ball, formed of this soft or fused mortar, which rolled along the floor of the room until it came to a cat-hole in the door, and being larger than the hole, it remained there apparently red hot. The young gentleman touching it with his finger, was severely burnt; on pushing a stick into it, in a few minutes its action on the enclosed wood exhibited demonstrative proof of the intensity of its heat. In the middle of the ceiling of the room, was a large black circle or ring, with a white spot exactly in the centre. Query, What was this owing to? was it owing to the back-stroke or reaction of the electric fluid? no injury being done to any of the inside plastering, either on the ceiling or walls. And again, upon what philosophical principle can the instantaneous fusion of this intensely exsiccated mortar be accounted for? But to return to the lady.

The young gentleman, her son, and the two servants who were none of them otherwise hurt, than by the burning plastering as already mentioned, after recovering from the surprise occasioned by the violent and dreadful report, they, with great presence of mind, loosened her clothes, ripped open her stays, and, by sprinkling water on her, shaking and pulling her about, and using constant friction, after some short time, recovered her: she demanded to know what they were doing, and what occasioned all the confusion apparently about her, and re-

ceived for answer—that the house had been struck with lightning, and that the first they observed of her, she lay across the bed to every appearance dead. As soon as she was sufficiently recovered to walk, she went up stairs, to examine whether the house had not taken fire in any of the upper apartments; on coming down stairs she made a false step, and instantly stretching out her arm, caught hold of the hand-railing of the stair-case, and exclaimed aloud to her son, to come and behold how miraculously she had recovered the use of her hands, and to observe with what ease she could extend her arms, and grasp, at pleasure, the bannistering of the stair-case.

Next day the physician coming to electrify her as usual, was pleased and astonished, as well as agreeably surprised, to find that his patient had experienced that complete relief, from a moment's application of atmospheric electricity, administered by nature's omnipotent arm, which two years unwearied application of artificial electricity, was not able to effect.

None of the other people in the room being struck but the lady, the physician supposed her system was, (in consequence of the many and repeated electrifications she had undergone, and particularly of late), rendered much more susceptible of the electric fluid, than any of the others in the room. It is now about twenty years since that time, and the lady informed me, she never has had the slightest touch of the rheumatism since she received the said shock. She now enjoys good health.

Memorandum for Dr. Humphreys.

IN the year 1770, about the month of June, I had a number of African slaves for sale; among them was a lad about eighteen years of age, who was a miserable object, from the disorder called the yaws; he was vastly more afflicted with it than any person I ever saw before or since; from his head to his feet he was thickly set with those sorts of knots or ulcers, which that disorder produces when it is in its worst stages. A Doctor Ellis lived at the place, who had very deservedly ac-

quired great reputation for his professional merit. I applied repeatedly to him to cure this lad: he did not actually refuse, but signified it would be tedious, the cure doubtful, and probably more expensive than he was worth. In this situation I should not have hesitated to have given him away to any one that would have accepted of him. Among my slaves there were a few who had been living for some time at one of the British factories in Africa, and understood a little of the English language. Observing that I was at a loss what to do with this diseased slave, they undertook to cure him, to which I readily consented, but with little faith in their success.

The Cure was as follows.

THEY took him to a running stream of water, laid him in it, two confined his feet, two his arms, and one held up his head to prevent drowning; two then operated in scrubbing off the knots and ulcers in the running water. The operation must have been dreadful, for they scrubbed him with corn-husks, and even sand; the blood and matter and scabs were constantly washed down the stream: when every ulcer was thus smoothed away and cleansed by the running water, they led him up naked to their house, and wiped him; then they made an ointment of the juice of limes made boiling hot, and mixed to a proper consistence, with powdered iron scales taken from a blacksmith's anvil: with this ointment they anointed every sore with a feather; the same operation was continued for four weeks; every six or seven days, they gave him frequently a decoction of some roots, which, I believe, operated as a purgative; in about eight weeks they completed a cure; in three or four months he became sleek, fat, and a very likely fellow; all the sores skinned over, and no scar remained. I sold him afterwards, and never heard that the complaint returned. Doctor Ellis was not less astonished at the cure than I was; he could not account for it. He supposed the iron and lime juice formed a species of salts, with which he was unacquainted

He promised to give the subject full consideration, and to inform me of the result; but he died soon afterwards, and I found nothing among his papers, but a state of the case similar to the above.

DAVID ROSS.

Proof of the Efficacy of Vaccination; together with a Case of co-existing Small Pox and Cow Pock.

PHILADELPHIA, December 4th, 1804.

SIR,

I HAVE to regret, that my occupations prevented me from communicating to you sooner, a remarkable case that I had lately under my care. It militates so much in favour of the vaccine inoculation, that, I hope, it will find the publicity it deserves, through the medium of your Museum.

On the 8th of October last, I was called to visit Mrs. B——, of this city. An intense fever, and all the other symptoms, joined to the information that she gave me of having been exposed to the infection of the small pox, which she never had, left no doubt in my mind, of the nature of her disease. I bled her, and she found herself much relieved. She then participated to me her apprehension for her four children, who never had the small pox, and desired a speedy inoculation; leaving entirely to my own judgment, the mode that I should think preferable. I determined, without hesitation,* for the vaccine; and, wishing to procure fresh matter, I postponed the operation until the next morning; but, Mr. B—— being absent from

* I say without hesitation, because I had once before vaccinated a babe, whose father was then sick with a confluent small pox: they both slept in the same bed; and it succeeded so well as to guard the child against the infection of the small pox.

home, I was requested to defer it again to the next day, that he might give his approbation.

On the 10th, I vaccinated her four children, and finding then that the eruption was going on pretty fast with the mother, I desired the children to be kept from her room; but seeing afterwards, that no attention whatever was paid to comply with my repeated request, and two days being already elapsed, without the least appearance of the vaccine infection, I inoculated them all with variolous matter taken from the mother.

Mrs. B—— was so well that I did not visit her until the 14th, when I found that the variolous infection had produced the desired effect upon her children, and, to my great surprise, that Betsey B——, the eldest daughter, about nineteen years of age, who had been, from the beginning, nursing her mother, exhibited an evident mark of vaccine infection.

Desirous to have a full view of the contest between the two diseases, and anxious to know which would gain the victory, I visited my patient every day, flattering myself with the hope, that the insertion of the vaccine virus having been made two days previous to that of the small pox, the areola would appear before the time of the eruptive fever of the small pox, and counteract the variolous infection.

The 19th, no sign of the areola.

The 20th, fever, pain in the arm-pit, faint appearance of the areola. Her brother with the eruptive fever of the small pox.

The 21st, beautiful areola, continuation of the fever, pain much increased, and swelling of the glands in the axilla. I was then struck with a very singular and unexpected phenomenon. An areola, similar in colour and size to the vaccine areola, was furrounding the variolous pimple, and continued as long as the other. Another phenomenon, no less worthy of remark, was, that although the variolous and vaccine pimples were scarcely one inch and an half distant from one another, there existed a line of demarcation, with the natural colour of the skin, between

the two areolæ, their circumferences being flattened instead of intermixing with one another.

These phenomena were so unexpected, that I called several times at your house, to have you an eye-witness of the case, but unfortunately never met you within. Meeting with Doctor Pascalis, and relating the case to him, he desired me to let him see this patient, and found it a very curious and interesting case.

I shall now remark, that all the other children who were inoculated for the small pox at the same time with B. B——, underwent a regular course of the disease, and she escaped it, although she had the nursing of the whole of them.

Not feeling satisfied of the result, without testing the matter of this vaccine, on the 22d, I took matter from both pimples, vaccine and variolous.

With the vaccine, I vaccinated three children, who received a very genuine kine-pock, without the least symptom of variolous infection.

With the variolous, I also inoculated three children, every one by a double puncture, but none of them received any infection. One of these three last children was inoculated afterwards with other matter of the small pox, and took it immediately.

A young boy was lately inoculated by me, with variolous matter four days after vaccination, the small pox produced no effect but for a few days.

Leaving any one to make his own remarks, I conclude by expressing the most earnest wish, that every one would exert his utmost endeavours to extend the benefits of such a blessing as vaccination.

Yours, sincerely,

J. C. ROUSSEAU.

To J. REDMAN COXE, M. D.

On the Cure of Chronic Diarrhœa, &c. in a Letter from DR. WILLIAM HAYES, of Dorchester County, Maryland, dated January 8th, 1801.

SIR,

I NOW present you with a few remarks on our late epidemic.—I found several under the most profuse sweats, without obtaining any relief. On Hooper's Island, they had more rain than where I live; their fevers higher; the discolouration of the skin but slight, and no black vomitings; the alvine discharges of many were black bile. Where there was less rain, there were several instances of the coffee-ground vomiting; especially after it assumed the form of dysentery.

I tried the effect of the shower bath on two patients under this form of the epidemic, (being baffled in other remedies), the effect was, a natural stool before they could be got to bed. They were laid in blankets, a perspiration ensued, and the tenesmus vanished for the day. At night the tenesmus, &c. returned; the next day the bath was repeated with the same good effect; the third day the bath was objected to. On the third or fourth day after, they died; one with the coffee-ground vomiting. The system was well loaded with mercury, at the time of using the bath, yet no evil ensued. The bath ought to have been used at least twice a day.

In the year 1792, a Mr. Henry Travers, with chronic diarrhœa of two or three years standing, applied to me after trying several other gentlemen; I recommended the bath with anodynes, which in a few weeks restored him to perfect health.

In 1798, a similar case occurred, but not of so long standing: the same remedy had the desired effect.

In fact, the shower bath is my principal remedy for the cholera infantum, diarrhœa, and intermittents in children.

Your most obedient, and

Very humble Servant,

WILLIAM HAYES.

DR. BENJAMIN RUSH.

Case of a Luxation of the Thigh-bone, forward, and the Mode of Reduction. By P. S. PHYSICK, M. D.

Philadelphia, 12th April, 1805.

IN February 1805, a man was brought to the Pennsylvania Hospital, in consequence of a dislocation of the thigh-bone at the hip-joint, which had taken place the day before, in the following manner. As he was riding on a sled which was drawn rapidly along, with his legs extended over its side, the foot of his left leg became entangled in the gears of a team of horses standing in the road. A great abduction of the leg and thigh was thus suddenly made, by which the head of the bone was forced out of its socket, and lodged on the os pubis, directly before the acetabulum. In this situation it formed a tumor, plainly to be seen and felt in the groin, under Poupart's ligament. The foot and knee were turned outward, the thigh was extended with the leg bent backwards. By a very particular examination it appeared that the dislocated limb, was a little longer than the other, though the difference in length was very inconsiderable.

After an unsuccessful attempt, which it is unnecessary to describe, the head of the bone was replaced by the following means.

The patient being laid on his back on a table covered with a mattraß, a firm strap was passed between his thighs, and the ends of it being carried upwards, before and behind his body, were fastened to a staple opposite his left shoulder, for the purpose of fixing the pelvis, and making the counter-extension. This strap was applied in such a manner, as to act as much as possible against the injured side of the pelvis, and was carried, therefore, between the dislocated thigh and the scrotum, and then over the tuberosity of the ischium of the same side. A strong towel was then fastened with a roller upon the leg just below the knee, and the leg was bent to a right angle with the thigh.* The ends of this towel were tied together, and a

* In the first attempt, two towels had been fastened on the thigh just above the knee, one on each side, but they were soon observed to slip.

pulley was hooked to it for the purpose of making the extension.

In order to draw the head of the bone directly outwards, a firm strap was passed over the pelvis below the crista of the ilium of the injured side, and the ends of it fastened to a staple opposite the sound side of the patient's body. Another strap was applied over the upper part of the dislocated thigh, the ends of which were fastened to a pulley opposite the injured side of the patient.

After the application of this apparatus, before commencing the extensions, the man was copiously bled, with the intention of causing him to faint, an effect, however, which was not fully produced, though he lost a considerable quantity of blood, by which he was much weakened. In this state of debility the extensions were repeated, and, at the same time, the leg being bent, was moved inwards and outwards so as to rotate the thigh-bone as much as possible, and thereby to assist in dislodging its head. To prevent the abduction of the thigh by the strap over its upper part, the knee was pressed inwards by the hand of an assistant applied on its outside.

In this manner several attempts were unsuccessfully made, but, added to the bleeding, they exhausted the patient's strength so much that his body became covered with a cold sweat. In this state of weakness the extensions were directed to be again repeated with greater force than had before been employed; and by these the head of the bone was suddenly reduced to its natural situation. The patient in a few minutes recovered sufficiently to move his thigh in every direction, suffered very little pain afterwards, and was discharged from the hospital, cured, in three weeks.

In order that the mode of reduction may be more easily understood, the enclosed sketch is herewith sent.

Reference to the Plate.

- a. Represents the strap passed between the scrotum and thigh, and over the tuberosity of the ischium, fastened to a hook, for making the counter extension.

- b.* A strong towel secured below the knee with a roller.
- c.* A pulley hooked on the towel for making the extension.
- d.* The strap passed over the pelvis, below the crista of the ilium, nearly at right angles to the body, and fastened to a hook opposite the right side. The use of this strap was to fix the pelvis, while the head of the thigh-bone was drawn directly outward by the strap *e*, passed round the upper part of the thigh at right angles to it.
- f.* The pulley hooked to this strap.

To avoid excoriation soft flannel was every where interposed between the straps and the skin.

History of a Case of Luxation of the Head of the Femur, upwards and backwards. By the Editor.

A MAN belonging to the Philadelphia frigate, in carelessly running along the cable, which had been rendered very slippery with mud, fell, whilst his legs were widely dis-
tended, and struck the left femur, on the great trochanter, where a slight eschar of the abraided cuticle was still evident. This happened on the 8th of July, 1802, and was said to have been reduced, but from the account received from the patient, it was rendered doubtful. On the 12th, I admitted him into the Pennsylvania Hospital. He suffered much pain, and there was great tension and swelling of the thigh, and apparently powerful contraction of the muscles. The head of the bone was distinctly felt under the glutæi muscles, the great trochanter being considerably higher than in the other limb, and consequently the affected limb was much shortened. The knee and foot were turned inwards, and any attempt to rotate the limb outwards, gave extreme pain.

To reduce this luxation, I fixed the patient firmly down with a broad strap, by passing it over the abdomen, and then through



Part of the apparatus for the treatment of the chest and abdomen



two apertures of the table on which he was placed, buckling the strap below. To the lower end of the thigh, I fixed a broad and firm leathern brace, which could be tightened at pleasure, and having several strong iron rings through which napkins might pass to make extension. I next placed a soft napkin in the crotch, passing it over the groin, to prevent attrition from a strong ring towel, which I passed in the same direction round the thigh, and after a twist or two to prevent slipping, I directed a strong assistant to put it round his neck, and stand upon the table, so as to have complete command of this part of the apparatus.

The man being placed on (or nearly so) his right side, I directed the assistant at the ring towel to pull upwards, steadily, yet firmly: the bone, I found, followed readily, and when it was moderately raised from its former position, I desired him to hold the towel without yielding any of the advantage he had gained. And now the other assistants began to extend the thigh, which was moderately bent upon the pelvis. After keeping up a firm, but equal extension for, perhaps, two or three minutes, I took the knee in my left hand, assisting with my right, at the joint. On giving the order, the assistants who extended and elevated the femur, at once relaxed entirely their operations, whilst, by a sudden rotation outwards of the knee, and firmly pushing the head of the bone forwards at the same time, it flew into the acetabulum with a snap, and attended with a sensation of the action of an elastic body which had been forcibly distended.

The limb immediately resumed its proper appearance; and from exquisite pain, the man declared himself perfectly easy.

Having never seen a case of luxated femur, I was fearful the bone might not retain its position without some aid, I accordingly fixed it firmly to the pelvis for a few days; the preceding case, however, shews that this might have been omitted.

As the man was considerably feverish, I ordered him a purge, and to lose twelve or sixteen ounces of blood. He was much relieved by the operation of the medicine; and on the

fourth day, I took away the dressings I had used to fix his limb. In about ten days he walked with crutches, and in two weeks he was discharged well.

August 1st, 1802.

Account of an Epidemic Ophthalmia. By DR. SHAW.

February 12th, 1803.

DEAR SIR,

I TAKE the liberty of communicating to you, a brief account of an ophthalmia, which appeared in the alms-house of this city last year, among the children. It proved highly contagious, insomuch, that in twenty-four hours after the admission of children into the nursery (where it was chiefly confined), their eyes were entirely closed with the excessive inflammation. The cause could not be discovered. Dr. Physick and myself had the charge of the children, many of whom were under two years of age, and none exceeded seven. After trying every thing that could be thought of, without effect, recourse was had to blood-letting, which had the desired effect. Many of them I bled as many as twenty times in the course of about six weeks; the quantity taken at each bleeding, was from two to four ounces: of between thirty and forty cases, only one remained uncured, and that was in consequence of rubbing the eye. This communication I thought proper to make at this time, because it, in my opinion, shews the urgency of the lancet in the disease in question, in as high a degree as in pleurisy or any other inflammatory complaint whatever.

I am, Sir, your very humble Servant,

WILLIAM SHAW.

DR. BENJAMIN RUSH.

Observations on the Use of the Nitric Acid in Syphilis. By JAMES HUTCHINSON, M. D.

THE powers of the Nitric Acid in syphilitic affections must, by this time, be nearly known. Experience has proved, at least in this country, that the acid ought not to be used in every case of lues venerea. I do not mean to assert that it should never be employed in this disease; on the contrary, I am convinced that it has been instrumental in saving the lives of a variety of syphilitic patients; but I also believe that it has frequently caused a vast deal of mischief.

The injurious effects of the medicine as it is commonly prescribed, are exerted on the teeth, on the stomach, and on the intestines.

The teeth are frequently brought to premature decay, by the corrosion of the enamel from the acid: this however may often be prevented, by ordering our patients to drink it from a tea-pot with the spout thrust far back into the mouth.*

The tone of the stomach is greatly injured by this remedy, so much so, that I have known dyspepsia brought on by the use of it.

The least of the disagreeable consequences of the acid, is its causing a diarrhoea; but this may be easily removed by the use of laudanum.

The last and most pernicious injury which attends the employment of this remedy, is, that in almost every case of the first stage of this disease, it does not check its progress. The instances are so numerous in which I have seen it fail, that I think it needless to relate them. I should not speak with this confidence, had I not seen it prescribed, and used it myself, in a great number of cases in the Pennsylvania Hospital, and in private practice.

* Or, what answers as well, by drawing through a quill, the medicine from a wine glass. E.

The forms of syphilis in which I witnessed the most happy effects of this remedy, were all of them of a secondary nature; such as ulcers in the throat, eruptions and blotches on the skin, and swellings of the periosteum and bones.

In nine cases of ulcers of the throat, the acid was used: six of them were cured by it, and the remaining three by mercury.

In sixteen cases of eruptions and blotches on the skin, the acid was prescribed: nine were cured by it, the others yielded to mercury.

In twenty-three cases of swellings of the periosteum and bones, in which the acid was used, five were cured, and six relieved: in the remaining twelve, mercury was used, eight of whom were cured, and four relieved.

Thus, from what experience I have had with this medicine, I may safely conclude, that it should never be used in the commencement of this disease, but that in secondary stages of it, it is a valuable remedy.

March 1st, 1805.

Observations on Vaccination. By the Editor.

THE continued prejudices which are opposed to the practice of vaccination, and which are still met with in all quarters, call seriously for the active interference of the well-wishers to this invaluable prophylactic throughout the globe. The favourable opinion entertained of it, no longer rests on the assertions and experiments of a few; but is dependent on the united testimony of hundreds and thousands of the most learned and experienced physicians, as well as of other persons. This being a fact so well ascertained, how shall we explain the un-

common exertions which are made by many, to destroy that confidence in the vaccine, which others are so anxious to increase? I fear, in attempting to develop this, we shall view a miserable portrait of human nature, actuated, in many instances, by the most selfish motives; in others, by prejudice founded on error or falsehood, or on both; whilst others again oppose *it*, in common with the small pox, as an impious act in tempting the ALMIGHTY, by creating diseases, which his Providence alone should direct.

Let us examine these various sources of opposition fairly, and endeavour to obviate the pernicious effects which their introduction has occasioned—and, first, we must view this opposition as arising from the most debased and selfish motive, an unqualified attention to self-interest, which induces many of the practitioners of medicine (chiefly, I am happy to add, of the *Irregulars*, with whom our city, in common with the rest of the world, is infested,) wilfully to shut their eyes against the light of truth, and to extend that intellectual blindness to others, who depend on their judgment as a guide.

Among this class of physicians, some anticipate a greater harvest from upholding the practice of inoculation for the small pox, inasmuch as this coincides with the prejudices of the multitude, whose favour they hope to share; whilst a candid acquiescence in the superiority of vaccination, might leave them with empty purses, in that situation to which their ignorance should level them. There is a man of this class in our city, who has long been celebrated as an inoculator for the small pox; who impudently promises the parents as few, or as many pustules on their child, as they may wish for. This person, whose knowledge is below mediocrity, has the assurance to traduce the vaccine on all occasions; though, from what is above stated, the reasons for this conduct may be easily seen. This is not all—This very man has had repeated instances of his patients being attacked with small pox, after his assurances to the parents of the perfect security of the previous inoculation: and

several instances of death, from this source, might be traced with little difficulty. In some of these cases, I have heard, that when the second attack had confounded even him, he has not scrupled to say, that the previous disease was the cow pock, and that they might judge from this, how little credit ought to be attached to it. Thus is the credulity of a fond parent played upon, to insure the success of the sole design of this, and other impostors in medicine—that of wringing as much as possible, from the earnings of the poor and needy, among whom their practice is chiefly confined. Humanity has no place in their hearts: this is a plant, to them of foreign growth; and is denied admittance with the most scrupulous attention.

When pains are thus taken by such base and worthless members of the community, to propagate the most atrocious falsehoods, we cannot wonder, that prejudice should so powerfully oppose the vaccine, in the minds of many. With every wish for truth, they cannot but believe what they hear so frequently and so confidently asserted; and on that conviction they must be allowed to act. What is every person's business is said to be that of no one; and, in this instance, it is peculiarly applicable. Were these persons, who are thus grossly deceived, to inquire for themselves respecting those cases, so confidently referred to, as cases of small pox after vaccination, they would not discover an appearance of truth in four-fifths of them; whilst in the remainder, they would find, the hundred tongues of that noted liar *Fame*, had produced a mountain from a mole-hill.

——“*Fama loquax, quæ veris addere falsa*

“*Gaudet, et e minimo sua per mendacia crescit.*”

As to the third set who oppose vaccination in common with variolous inoculation, under a persuasion of the impiety of the measure, by supposing they thereby tempt the ALMIGHTY; we can only commiserate that ignorance which can lead to an opinion so erroneous, and so pregnant with evil to mankind.

This idea, if consistently pursued, should lead us to bend beneath the various ills of life, without an exertion on our part to oppose them, by such means as a beneficent CREATOR has placed in our power. Against such ignorance, it is scarcely possible to oppose a barrier: fortunately, it carries its punishment with it, and must ultimately work its own cure, when woful experience teaches them that their doubts have been so greatly unfounded.

As my endeavours to promote this great blessing, have arisen from a firm conviction of its advantages, founded on experience; I am disposed to regard opposition to it, on any other score than those above mentioned, as arising from a total ignorance of its nature and properties. Still, however, with the numerous attestations in its favour before us, I cannot but consider those parents as highly culpable, who do not prefer a previous trial of the vaccine, to that most loathsome disease the small pox. If the vaccine was attended with the same dreadful symptoms which so often accompany the small pox, some excuse might be offered in mitigation of their folly, which risks the life of a darling child, even under the boasted safeguard of inoculation. It is true, that inoculation, before the introduction of vaccination, deserved the warmest encouragement, because its fatality is small indeed, when compared with that arising from the natural contagion; but the same reasons which then operated so forcibly in favour of inoculation, now act with ten thousand times more force in favour of vaccination, because, as far as the records of vaccination extend, we have no well attested case of mortality from it; and, indeed, to those who are acquainted with its nature, it must appear altogether incredible, that a fatal case should ever occur. Were even the chances of death as great from this, as from inoculated small pox, it would still be our duty to employ it, because it is confined solely to the individual; whilst the small pox communicates its influence to all who come within its destructive focus.

Let me ask, who are the opponents of vaccination? In general a set of ignorant and designing men, who have no view

beyond their own interest; whilst the first characters in every region to which it is extended, are its warmest and most decided supporters. This alone should silence every clamour; for, can it be supposed, that men would act so totally in opposition to their character and interest, as to recommend the vaccine, when the necessary consequence of their patients taking the small pox at any subsequent period, must be, a decided obligation to attend them gratuitously, and at the same time, to bear all the indignant clamour of the friends of the innocent sufferers from their folly.

It is reasonably to be supposed, that the introduction of a new disease, like the vaccine, should have been attended with mistakes, before all its peculiarities were discovered. That this unfortunately has been the case, is true; but are we to argue against its use, from evils resulting evidently from ignorance? Whatever may have been the mistakes at first, and whatever may still be the mistakes of young beginners, before they have made themselves thoroughly acquainted with the unfailing characters of the disease; I will venture to say, that no disease exists, in which fewer mistakes can, or ought to be made; for it possesses a character so exclusively its own, that I know of no disease with which it can possibly be confounded. With this character of the disease, it is the business—it is the bounden duty of every practitioner to acquaint himself; ignorance ought here to be no excuse—where the path is as clear as noon-day.*

* By accident, indeed, the disease may, in its early stage, be destroyed; and, perhaps, this may have been the case in some of those instances of small pox, said to have occurred after vaccination. A physician sees a regularly advancing vaccine pock on the fourth or fifth day; and at this period when it is simply a *local* affection, an accident rubs off the pock, and the disease is, in all probability, nothing more than the effect of simple, or erysipelatous inflammation. Some cases of this description I have seen, which, at an early period, shewed the character of the vaccine; though it was totally obliterated by rubbing, on the fourth, fifth, and sixth days, so that I never could detect the vaccine again; yet considerable inflammation on the eighth day (in one destroyed the sixth day) with fever, &c. render-

How different is this from small pox! Mistakes are daily made between it and the chicken pox, and even by the most experienced, whereby a false security has been induced, which has eventually proved fatal to the deluded patient.* The small pox in its most malignant form, differs so totally from the mild and distinct kind, that experience alone can recognise in them, one and the same disease. These are surely reasons for adopting the vaccine, which the smallest experience, may, without difficulty identify. The entire freedom from all anxiety, both of parents and physicians, in the use of the vaccine, might be here urged also, as a powerful reason for extending as widely as possible its beneficial influence.

Amidst all that enthusiasm which I feel for the vaccine, I shall not hesitate to say, that I doubt not, among the many hundreds of thousands who have passed through it, one, occasionally, may be found, who may be susceptible of the small pox subsequently. In allowing this, what do the enemies of vaccination gain? In fact nothing! for where they may bring forward one such case, properly attested, I can assuredly produce

ed it probable it had produced a constitutional disease; but it would not excite surprise in me to find this child susceptible of the small pox; and still less in cases where the injury is on an earlier day.

Since writing the above, I have had a confirmation of my opinion by a similar fact, related to me by a physician, of a child whom he vaccinated: the disease progressed to his satisfaction till nearly the sixth day; he did not see it again till the eighth; on the sixth the pock was completely rubbed off; and, doubtless, before any constitutional effect could have taken place. The Doctor expressed himself dissatisfied with it, and wished to repeat the vaccination; this was refused, and a few months after the child died with the natural small pox. Here then, we see the utility of visiting our patients daily, or every second day, to detect such occurrences; and we may readily account for some of the cases of *subsequent* small pox in the country, where the patient is sometimes visited *but once a week*.

* There can be, I think, but little doubt, that many supposed cases of small pox subsequent to vaccination, both by inoculation and exposure, have actually been cases of chicken pox. Some of these have been accidental, but I fear some have been intentional, to discredit vaccination. We ought then to have some further proof than the mere assertion of friends and neighbours.

a dozen, nay, one hundred, of an attack of small pox subsequently to inoculation. Here then we still retain all the advantages ascribed to vaccination over inoculation; for we certainly cannot expect the vaccine to be endowed with a greater security against the small pox, than the latter actually possesses against itself. I might perhaps be vindicated in asserting, that any case of small pox subsequent to vaccination, may probably be accounted for, on the supposition that the previous vaccine had affected the person *locally*, and not constitutionally; but I shall not shelter it behind such a refuge. Vaccination needs it not! Its value is too strongly rooted, to require such a subterfuge; and I willingly allow the enemies of this disease to make the most of it. It is a tub for the whale to play with; and much good may it do him.*

I shall not say any thing respecting those eruptions, sores, and swellings, &c. which are said to follow this disease. In the small pox, according to my experience, they are more common, and perhaps in persons predisposed to them, any disease affecting the whole constitution might be equally liable to induce them. I shall, however, in a future paper, detail a case in which the vaccine unequivocally cured a patient labouring under a long continued tinea capitis, as a strong inducement to employ this disease in similar cases.

* As facts have fully proved, that some few individuals have been susceptible of the vaccine after the small pox, not merely local, but constitutional; it certainly is not unfair to conclude, that these very persons if previously vaccinated, might have evinced a disposition to the small pox, particularly by the insertion of the variolous poison; which in some habits (of which we have instances on record) has even exerted its influence in a second attack of itself.

Experiments and Observations on the Lehigh Coal. By JAMES WOODHOUSE, M. D. Professor of Chemistry in the University of Pennsylvania.

PHILADELPHIA, May 3d, 1805.

SIR,

I SEND you for the Philadelphia Medical Museum, an account of some experiments made with the Lehigh coal, and the distinguishing characters of this combustible body.

Other inflammable substances, will, no doubt, be discovered in the United States, and should they be submitted to a proper course of experiments, bodies, apparently of the same nature, may be distinguished from one another, important services be rendered to our citizens, the arts benefited, and a foundation laid for a system of American mineralogy.

With respect, I am,

Dear Sir,

Your humble Servant,

DR. J. R. COXE.

JAMES WOODHOUSE.

THIS coal is found in immense quantities, in Pennsylvania, in the county of Northampton, near the river Lehigh. It is of a shining black colour, and stains the hands very little. Its fragments are tabular, as may be seen, particularly after it has been submitted to heat. Its specific gravity is 1,6181. It burns with very little flame, and no smoke; is with some difficulty kindled, and requires a considerable draught of air, to keep up its combustion.

When perfectly consumed, it leaves behind, a small portion of white siliceous earth, containing no pot-ash, and sometimes coloured brown, by means of iron. It does not contain any sulphur.

Neither the sulphuric, nitric, nor muriatic acids act upon it.

It does not take fire, when reduced to an impalpable powder, and passed through the flame of a candle.

A piece of it red hot, containing about eight cubic inches, was placed in forty-eight ounce measures of atmospheric air over water, and suffered to cool. Upon passing one measure of this air over lime water, in the Eudiometer of Fontana, it gave one per cent of carbonic acid gas. The remainder of the air, after being freed from the fixed air, was reduced in purity from 100 to 85.

One cubic inch of it, red hot, suspended in ten ounce measures of oxygen gas, brightened very little.

The focus of an eleven-and-a-half inch lens, was directed upon a lump of it, confined in a bell-glass, in twelve ounce measures of oxygen gas, over water, when it burnt with a considerable flame, and nearly in the same manner, as the James's river coal, when a blast of atmospheric air is thrown upon it. The gas was afterwards reduced in purity, and contained fifty per cent of carbonic acid gas.

A quantity of the coal red hot, being extinguished under water, produced an inflammable air, without any mixture of fixed air.

Two measures of this gas, and one of oxygen-air, exploded by the electric spark, in the Eudiometer of Volta, left behind one measure of hydrogen gas, containing ten per cent of carbonic acid gas. Two measures of each of the gases, by the same means, were reduced to something more than a measure of oxygen air, which was mixed with fifteen per cent of fixed air.

Four ounces of it, reduced to a coarse powder, were exposed in an earthen retort, to a red heat in one of Lewis's black lead furnaces, when it yielded three hundred and sixty ounce measures of hydrogen gas, of the same kind as that produced by extinguishing it, when red hot, under water.

The same coal taken from the retort, and sprinkled with water, and exposed a second time to heat, afforded thirty ounce measures of inflammable air, in the first portions of which, the carbonic acid was barely perceptible.

The steam of water was transmitted over the coal red hot, confined in a porcelain tube, and it gave hydrogen gas in tor-

rents, mixed with ten per cent of fixed air. Two measures of this hydrogen gas, after the carbonic acid had been separated from it, and one of oxygen gas, left near a measure of inflammable air, mixed with fifty per cent of fixed air.

A fire was kindled at half past eleven o'clock, by placing a quantity of the Lehigh coal, upon a stratum of common charcoal in a powerful air furnace, which was then filled with equal portions of the two substances.

As fast as the charcoal consumed, the Northampton coal was added, and at half past one, the furnace was completely filled with it, and two-thirds of it red hot. At four the coal was half consumed, and it continued burning until eleven o'clock at night.

Five of Wedgwood's thermometer pieces, put in crucibles made of porcelain, were deposited in different places among the coal, that they might descend in different directions, and some of them be exposed to the greatest degree of heat.

When they were cool, being measured by the gauge, they gave 70, 77, 150, 156, and 159, degrees.

125 is the highest heat Mr. Wedgwood could ever produce, in a common smith's forge, and 160 in an air furnace, eight inches square. Brass melts at twenty-one, copper at twenty-seven, silver at twenty-eight, gold at thirty-two, and cast iron at one hundred and thirty of this thermometer. The welding heat of iron is one hundred and twenty-five.*

James's river coal, submitted to an experiment of the same kind, burned out in four hours.

A fire was made with the Lehigh coal, in a smith's forge, and two thick bars of iron were placed in it, and welded with great ease, by the proprietor of the furnace.

The smith, his journeymen, and bystanders were convinced, that the heat was much cleaner and greater, than that of the James's river coal.

* Description and use of a thermometer for measuring the higher degrees of heat, by Josiah Wedgwood. *Phil. Trans.* Vol. 72d.

As the Virginia coal burns with flame and much smoke, a vast portion of this combustible substance, and the heat generated by it, is lost by passing up the chimney.

It appears from some of these experiments, that this coal does not unite to the base of oxygen gas, with as much rapidity as common charcoal, and that it decomposes water. Its flame consisting of oxyde of carbon, or carbonated hydrogen gas, arises from this decomposition.

When it is exposed to a red heat, and contains little water, it gives rise to a peculiar species of inflammable air, without any fixed air; but when the steam of water is transmitted over it, in a red heat, the production of carbonic acid gas is very considerable, and when the hydrogen gas, thus obtained, is fired with oxygen gas, the fixed air generated amounts to thirty-five per cent more than when it is procured from coal united to a small quantity of water.

According to the opinions, now generally adopted by the Philosophers of Europe, the gases, when little water is mixed with the coal, must consist of oxyde of carbon and carbonated hydrogen gas. It will be said, the oxygen of the water, unites to part of the coal and forms oxyde of carbon, while its hydrogen escapes, dissolves a portion of the coal, and makes carbonated hydrogen gas.

This explanation is far from being satisfactory; for no oxyde of carbon can be detected in the gases, produced by extinguishing this coal when red hot under water, or by submitting it to heat in an earthen retort.

The Lehigh coal promises to be particularly useful, where a long continued heat is necessary, as in distilling, or in evaporating large quantities of water from various substances; in the melting of metals, or in subliming of salts; in generating steam to work steam engines; and in common life, for washing, cooking, &c. *provided the fire-places are constructed in such a manner, as to keep up a strong draught of air.*

MEDICAL AND PHILOSOPHICAL REGISTER.

FOREIGN AND DOMESTIC.

AT a stated meeting of the American Philosophical Society, held at Philadelphia, for promoting useful knowledge, on the 19th of April, 1805.

William Tilghman, Esq. was duly elected a member of the society.

THE thanks of the society are presented to the following persons for their *Communications* and *Donations*.

COMMUNICATIONS.

On the Italian manner of managing Silk-worms. By R. K. Lowry, received through the President of the Society.

On the Manufacture of Cloth from the Fur of Seal-skins, accompanied with specimens. By R. R. Livingston.

DONATIONS FOR THE CABINET.

Sundry specimens of minerals, chiefly from Elba. By John D. Clifford.

Specimens of lead ore and its gangue, found on Perkioming creek. By James Mease, M. D.

Rock crystal on ferruginous stone, from Washington City. By J. B. Smith, Esq.

Engravings of the heads of Dr. Rush, Dr. Wistar, and Dr. Barton, from Mr. Haines the engraver.

Engraving (framed) of Richard Price, D. D. By Thomas C. James, M. D.

A Chinese mariner's compass. By D. Davis.

DONATIONS FOR THE LIBRARY.

Medical Theses, selected by C. Caldwell, M. D. 8vo. 1805. By T. & W. Bradford.

Jacob Christian Schæffer's *Sæmtliche Papier Versuche*, containing 84 specimens of paper, chiefly made from vegetables, with observations on the mode of manufacturing them. By William Hamilton, Esq.

Plan de Paris à vol d'oiseau, gravé en 20 planches, par ordre des Echevins de la Ville, fol. 1739.

Travels in Egypt and Nubia. By F. L. Norden, 2 vols. in 1, fol. Lond. 1757. These two by P. S. Du Ponceau, Esq.

Bill of Mortality for Portsmouth, 1804. By L. Spalding.

Facts and Arguments in favour of Inland Navigation in the United States. By Camach, Esq.

Genuine Principles of Navigation. By Mr. George Baron, of New York, 1803. By the Author.

Reports of Directors of the Chesapeake and Delaware Canal. by J. Gilpin.

Memoirs of the Life and Correspondence of Sir William Jones. By Lord Teignmouth. Philadelphia, 1805. By Mr. William Poyntell.

Essai sur les Propriétés Médicales des Plantes, comparées avec leur formes extérieures & leur classification naturelle. By A. P. Decandotte.

Mathematics compiled from the best Authors, for the Use of Harvard College. By the Compiler, Samuel Webber, A. M.

Eulogy by Professor Webber, on the Rev. Joseph Willard. By the Corporation of Harvard College.

Conditions of the Magellanic Premium.

M. JOHN Hyacinth De Magellan, in London, having some time ago offered as a donation, to the American Philosophical Society held at Philadelphia for promoting useful knowledge, the sum of two hundred guineas, to be by them vested in a secure and permanent fund, to the end that the interest arising therefrom should be annually disposed of in premiums, to be adjudged by the society, to the author of the best discovery, or most useful invention, relating to navigation, astronomy, or natural philosophy (mere natural history only excepted) and the society having accepted of the above donation, hereby publish the conditions, prescribed by the donor, and agreed to by the society, upon which the said annual premiums will be awarded.

1. The candidate shall send his discovery, invention, or improvement, addressed to the President, or one of the Vice Presidents of the society, free of postage or other charges; and shall distinguish his performance by some motto device or other signature, at his pleasure. Together with his discovery, invention, or improvement, he shall also send a sealed letter, containing the same motto device or signature, and subscribed with the real name, and place of residence of the author.

2. Persons of any nation, sect, or denomination whatever, shall be admitted as candidates for this premium.

3. No discovery, invention, or improvement, shall be entitled to this premium, which hath been already published, or for which the author hath been publicly rewarded elsewhere.

4. The candidate shall communicate his discovery, invention, or improvement, either in the English, French, German, or Latin language.

5. All such communications shall be publicly read, or exhibited to the society, at some stated meeting, not less than one month previous to the day of adjudication; and shall at all times be open to the inspection of such members as shall desire it. But no member shall carry home with him the communication, description, or model, except the officer to whom it shall be intrusted; nor shall such officer part with the same out of his custody, without a special order of the society for that purpose.

6. The society having previously referred the several communications, from candidates for the premium then depending, to the consideration of the twelve counsellors and other officers of the society, and having received their report thereon, shall, at one of their stated meetings in the month of December, annually, after the expiration of this current year, (of the time and place, together with the particular occasion of which meeting, due notice shall be previously given, by public advertisement) proceed to the final adjudication of the said premium: and after due consideration had, a vote shall first be taken on this question, viz. Whether any of the communications then under inspection be wor-

thy of the proposed premium? If this question be determined in the negative, the whole business shall be deferred till another year: but if in the affirmative, the society shall proceed to determine by ballot, given by the members at large, the discovery, invention, or improvement, most useful and worthy; and that discovery, invention, or improvement, which shall be found to have a majority of concurring votes in its favour, shall be successful; and then, and not till then, the sealed letter accompanying the crowned performance shall be opened, and the name of the author announced as the person entitled to the said premium.

7. No member of the society who is a candidate for the premium then depending, or who hath not previously declared to the society, either by word or writing, that he has considered and weighed, according to the best of his judgment, the comparative merits of the several claims then under consideration, shall sit in judgment, or give his vote in awarding the said premium.

8. A full account of the crowned subject shall be published by the society, as soon as may be after the adjudication, either in a separate publication, or in the next succeeding volume of their transactions, or in both.

9. The unsuccessful performances shall remain under consideration, and their authors be considered as candidates for the premium, for five years next succeeding the time of their presentment; except such performances as their authors may, in the mean time, think fit to withdraw. And the society shall, annually, publish an abstract of the titles, object, or subject matter of the communications so under consideration; such only excepted as the society shall think not worthy of public notice.

10. The letters containing the names of authors whose performances shall be rejected, or which shall be found unsuccessful after a trial of five years, shall be burnt before the society, without breaking the seals.

11. In case there should be a failure, in any year, of any communication worthy of the proposed premium, there will then be two premiums to be awarded in the next year. But no accumulation of premiums shall entitle an author to more than one premium for any one discovery, invention, or improvement.

12. The premium shall consist of an oval plate of solid standard gold, of the value of ten guineas; on one side thereof shall be neatly engraved a short Latin motto, suited to the occasion, together with the words—The premium of John Hyacinth de Magellan, of London, established in the year 1786. And on the other side of the plate shall be engraved these words: Awarded by the A. P. S. —for the discovery of—A. D.—

And the seal of the society shall be annexed to the medal, by a ribbon passing through a small hole at the lower edge thereof.

Surplus Magellanic Fund.

MR. de Magellan having fixed at ten guineas, the sum to be annually disposed of as a premium, according to the strict terms of his donation, and the fund having been so managed as to produce an annual surplus, which has accumu-

lated for some years—the society, with a view to promote as far as may be in their power, the liberal intentions of the donor, have determined that the surplus fund shall be employed, in the first instance, according to the strict conditions of the donation, if a sufficient number of deserving candidates shall have applied for the same, otherwise, that such surplus, or so much thereof as cannot be applied as above, be awarded by the society to the authors of useful inventions or improvements, on any subjects within the general view of the Magellanic Donation, or to the authors of such communications as may lead to such inventions or improvements, and which communications may be deemed worthy of the premium. The premium to consist of a gold medal of the value of not less than twenty, nor more than forty-five dollars, or the same sum in money, at the option of the candidate, to which will be added a suitable diploma.

The society have also thought proper to point out a few subjects to which they would wish to direct the attention of those who may be disposed to become candidates for the premium; informing them at the same time, that communications on other subjects which come within the general or particular views of the donor, will not be excluded from the competition. It is also necessary to be observed, that all communications for the extra premium must be made and transmitted, agreeably to the form and manner prescribed in the conditions for the original premium.

The subjects the society would designate, are,

1. The native American permanent dyes or pigments, illustrated by experiments, and accompanied by specimens of the materials used, and articles coloured.
2. The best means of navigating the rapid rivers of North America against the stream.
3. The general natural history of the principal ranges of American mountains, in the country eastward of the Mississippi.
4. The natural history and chemical and medicinal qualities of the warm (hot) springs of the United States, or of any particular state.

To the Editor of the Philadelphia Medical Museum.

SIR,

A FEW days since, Mr. Butland, of this city, put into my hands a specimen of a black coloured mineral, weighing five ounces, which was found in the county of Northampton, on the farm of Mr. Weifs, about thirty miles from Bethlehem, in the neighbourhood of the Lehigh, and informed me that it might be easily procured, in great quantities, at that place.

Having subjected this substance to a variety of experiments, it was discovered to be Manganese of the first quality, containing little extraneous matter; and far superior to most of that which is sold in the shops of the druggists, considerable quantities of which I have frequently been obliged to throw away after purchasing it, from the impurity of the material.

The oxygen air obtained from this native ore, was equal in purity to that which was afforded by a specimen of the foreign, sent to me by the late Dr. Priestley, the discoverer of this gas, who informed me, that it yielded an air as pure as any he had ever procured during the course of his life.

Manganese is useful to the physician, in consequence of the air it affords, and to which some of the most violent diseases to which the human body is subject, have given way; to the bleacher, paper maker, and manufacturer of glass, as a destroyer of colouring matter, when combined with the marine acid; to the potter, as giving a black colour, and assisting in glazing his earthen ware; and to the philosopher and artist, as containing a gas, which, combined with certain combustible bodies, will generate a degree of heat unattainable by other means.

As the science of mineralogy is little attended to in the United States, the intention of this communication is, to induce gentlemen residing in the country, to pay some attention to the mineral productions of their fields, by which means they may greatly benefit themselves, and render the most important services to the arts, yet in their infancy in this part of the world.

Any person desirous of information, concerning any of our native fossils, by applying to me, shall be gratified, as far as is in my power; and if the material sent to me, is thought to be of any use to society, an accurate analysis of it shall be made, free of expense.

I am, Sir, with Respect,

Your humble Servant,

JAMES WOODHOUSE.

P. S. Since writing the above, I have examined another specimen of this manganese, weighing one pound.

Two ounces of it reduced to powder, heated in an iron tube, in one of Lewis's black lead furnaces, yielded eighty cubic inches of oxygenous gas, which tested by phosphorus, in the eudiometer of Fontana, left behind about three per cent azotic gas.

One measure of the oxygen gas, passed up over lime water, gave a portion of carbonate of lime, barely perceptible.

One ounce measure of muriatic acid, heated upon one ounce, by weight, of it over water, afforded forty-five cubic inches of oxy-muriatic gas, in which leaf-copper, commonly called *Dutch metal*, immediately inflamed.

Its specific gravity, taken by Mr. William Hembel, senior, at the temperature of 62° of Fahrenheit's thermometer, and before it had absorbed water was 3.4193. After (and the absorption accelerated by thirty minutes boiling in water), it rose to 3.7667.

Like all the other ores of manganese, it is combined with iron, siliceous earth, &c. A deep blue precipitate takes place, upon adding the prussiate of pot-ash, to a solution of it in the muriatic acid.

J. W.

April 26th, 1805.

The following letter from Dr. Otto, on the use of the vaccine scab, is strongly in favour of the practice, and deserves the particular attention of medical men.

April 29th, 1805.

MY DEAR SIR,

I HAVE much pleasure in informing you, that I have succeeded, at the first attempt, in communicating the kine pock to nineteen children in succession; and that I was not disappointed in one instance when this portion of infection was used. It was a primary scab, taken from a healthy girl eight years old, who had the disease very strongly marked, having considerable fever for two days, a swelling and much pain in the ax-

illa, together with a very characteristic appearance on the arm. No infection had been taken from the patient, nor had the vesicle been broken, and the mahogany-coloured part alone was employed to excite the disease. Nor should I omit to mention, that in consequence of having frequently failed heretofore, I bestowed unusual care in performing the operation, wiping away several times, the small quantity of blood that sometimes flows from the incision, and endeavouring to introduce, by means of the flat side of the lancet, well moistened with the infection, a certain portion, between the lips of the distended wound; and to prevent any ill effects from diluting the virus, a fresh piece was used every time. Believing that the infection remains unaltered, as to its properties, longest in the form of scab, perhaps from its being in a large mass, and therefore, excluded in a greater degree from the atmospheric air, I give it a decided preference. It would give me pleasure to point out any circumstance that would render the communication of the kine pock more certain, or assist in ascertaining those marks which indicate active virus.

With great Regard,

Yours,

DR. COXE.

JOHN C. OTTO.

The following extract of a letter from Dr. De Carro, of Vienna, to a physician in London, dated October 6th, 1804, is an additional testimony in favour of the vaccine scab.

“ The experiments made with the insertion of the triturated and moistened vaccine crust succeed every where. Dr. Valentin of Nancy, wrote me lately, that he has produced regular pustules in that way in twenty-three cases. This is an important fact in the practice, which furnishes a very easy method of keeping and sending the matter for any length of time, and to any distance.”*

Med. & Chirurg. Review.

* To these I may add, that I have never been more successful in exciting the disease, than this spring, during which I have almost exclusively used the vaccine scab. *Editor.*

Vienna, August 25th.

According to the latest information received by Dr. de Carro, from different physicians, and the governor of Bombay, it appears, that vaccination has become general in all the British possessions in India; that the neighbouring Asiatic princes vie with each other in obtaining from them vaccine matter, in order to propagate it in their states; and that hopes are entertained of soon hearing that it has been introduced into Tartary and Japan.

A passage translated from an Indian Manuscript, written by a native prince, and published in the Bombay Gazette, proves that some of the Bramins, many centuries ago, were not only acquainted with the cow pock, but with vaccine inoculation; that the operation was performed by means of an impregnated thread; but that it was not common, as the Bramins inoculated only those children whose parents worshipped the Bhowany, a female deity, the protectress of those who have the small pox. The goddess is generally represented riding on an ass; and the father of the child to be inoculated, brings her an offering, consisting of corn, which he takes from his bosom, and gives to the ass to feed upon. The ceremony is repeated as soon as the cow pock appears. Governor Duncan, of Bombay, has transmitted this information to Dr. de Carro, with a handsome letter, and a present of two valuable shawls and three pieces of most beautiful muslin, for his lady.

Tilloch.

Dr. Bremer, physician to the great Orphan Hospital at Berlin, observes, that in 100,000 cases of vaccination, that have more or less immediately come under his cognizance, not a single instance of subsequent small pox has occurred: he has himself vaccinated more than 4,000 subjects. In every case to which he has been called, where small pox was supposed to have taken place, he found it to be a subsequent vaccine eruption, an appearance that frequently takes place, and which

commonly dries away in about a couple of days. A more rare case is, he observes, that where, after from 8 to 12 weeks, an *ebullition* takes place in the blood, producing on the skin large pustules, or vesicles, (*bulles*), that afterwards become covered with a crust, which falls off, and is again renewed, during several weeks, unless calomel be employed, which produces a speedy cure. This takes place especially among the children of the poor, who have other acrimonies floating in the blood, and which the vaccine inoculation puts in motion.

Med. & Chirurg. Review.

VACCINE INOCULATION.

Statement of the Number of Persons inoculated at the Stations of the Royal Jennerian Society, in eighteen Months, from the Quarterly Reports.

Central House - - -	2911	Bishopsgate - - -	1070
Surry Chapel - - -	2110	Hoxton - - -	816
Maze Pond, Southwark	387	Golden Lane - - -	579
Rotherhithe - - -	510	Clerkenwell - - -	245
Shadwell - - -	512	Gate Street, Holborn	216
Mile End - - -	516	Mary-le-bone - - -	1523
John Street, Minories	400	Westminster - - -	218
Inoculated before the Central House was opened -			275
		Total -	12288

N. B. In the same period, 19,352 charges of vaccine virus have been supplied from the Central House, in Salisbury Square, free of expense, to applications from most parts of the British empire, and foreign countries.

It will doubtless be highly gratifying to the public, to observe the remarkable decrease of deaths by the small pox, as

appears by the following comparative view, extracted from the Bills of Mortality :

January, 1803	-	181	1804	120
February	-	121	-	77
March	-	95	-	44
April	-	61	-	38
May	-	69	-	88
June	-	48	-	29
July	-	50	-	35
August	-	67	-	27
September	-	85	-	33
October	-	64	-	50
November	-	152	-	45
December	-	180	-	50
		<u>Total</u>	<u>1173</u>	<u>Total</u> <u>586</u>

This decrease will appear still more important when compared with the annexed statement of deaths by small pox, for fifty years, within the Bills of Mortality, averaged by ten years.

From 1750 to 1759	-	-	19,642
1760	1769	-	24,435
1770	1779	-	22,039
1780	1789	-	17,121
1790	1799	-	17,685
		<u>Total</u>	<u>- 100,922</u>

Making an annual average of 2018 deaths per small pox in fifty years.

The following is an annual statement of deaths in the present century :

1800	-	-	-	2409
1801	-	-	-	1461
1802	-	-	-	1579
1803	-	-	-	1173
1804	-	-	-	586

It is hoped the knowledge of these facts will be strongly promotive of the beneficial practice of vaccine inoculation, it appearing that the fatal disease of small pox has progressively declined as the inestimable discovery of Dr. Jenner has been introduced.

Medical & Physical Journal.

“ Posterity will be surpris’d that the doctrine should ever have been maintained and published, and by medical gentlemen, that the cow pock only secured *for a time*. It was limited at first to *two*, afterwards to *three*, and then to *four* years. Three children of Mr. Henry Jenner, inoculated *five* years ago, have since been repeatedly inoculated with variolous matter, and expos’d to the infection of the natural small pox, in its worst form, every year up to the present time, without catching the disease. Pead, vaccinated by Dr. Jenner more than *six* years, and Phipps, his first patient, vaccinated by him more than *eight* years ago, have been frequently put to the same tests with impunity. In the spring of the present year, they were inoculated for the small pox with matter in the most active state, but they resisted infection.

Note to Dr. Thornton’s letter on the cow pock. Tilloch.

As it is incumbent on every friend to vaccination to oppose as soon as may be, any false reports against the credit of this practice, I think it useful to introduce the following.

A child of Mr. Clapier, merchant of this city, having been repeatedly stated to have taken the small pox, by inoculation, after vaccination, I called upon the physician who vaccinated him, and obtained from him the following certificate.

“ Je soussigné, medecin exerçant à Philadelphie, certifie avoir vacciné deux fois l’enfant de Mr. Clapier, negociant de cette ville, dans le courant du mois d’Avril, 1802, sans autre effet qu’une légère inflammation de peau, produite par la

pique, qui s'est manifesté des le lendemain de la vaccination, & qui a été suivie d'une petite pustule dont la croute est tombée le sixième ou le septième jour; ayant été bien convaincu par les symptomes mentionés ci-dessus, qu'il n'avoit pas eu la vaccine, je l'ai déclaré *affirmativement* à la famille, & depuis au Dr. Wistar qui m'en a fait la demande avant de l'inoculer.

Philadelphie, le 18 Decembre, 1804.

J. A. MONGES."

Mrs. Lillibridge, who lately died of the small pox, was reported to have taken it after vaccination; but on inquiry, I found she had never been vaccinated.

The son of Mr. Emerick, baker, in Market-street, I was told, had nearly lost his life by a severe attack of natural small pox, after vaccination. On making inquiry of his parents, I found the boy much marked from the disease which he had caught last winter; he had, however, never been vaccinated, but had been inoculated for the small pox when two years old, (the cicatrix of which was very conspicuous on his arm), and had it very favourably; he then had several pock, which left marks on him; he is now about twelve years old.

I shall here take the liberty to introduce the following---

COMPARATIVE VIEW OF THE
VACCINE and SMALL-POX.*

Small-pox.

First. This disease is in the highest degree contagious: hence those who never have had it, cannot without extreme hazard, mix with such as labour under it.

Vaccine.

As this disease is not contagious, the separation of the well from those who are under its influence is entirely needless.

* See "Practical Observations on Vaccination," p. 195.

Small-pox.

Second. The eruptive fever of the Small-pox is not unfrequently attended by convulsions of the most alarming nature, the effects of which are often felt through life. This is even often the case when the subsequent eruption is comparatively small.

Third. The numerous pustules produced by this disease in many instances, in opposition to every attention, whilst they exhibit by their temporary presence, a sight of the most horrid kind; are not less to be dreaded from their frequent disfiguration of their unfortunate victim, by the pits they leave behind.

Fourth. That attention to diet and to medicine, which is often necessary in guarding against the violence of this terrible disorder, is a frequent source of evil, as hundreds of mothers can testify.

Fifth. The season must be attended to in inoculating for the Small-pox, as well as the age and present condition of the system; hence pregnancy and teething are invincible barriers against inoculation.

Vaccine.

None of these dire effects are to be dreaded in the mild process of Vaccination.

An eruption in this disease is so rare an occurrence as never to be expected: And where it does exist, the number is so small, as to render it of little moment.

There seems to be scarcely an instance in which either regimen or physic would be requisite in the Vaccine.

One season is scarcely preferable to another in this mild disease: Age and existing circumstances are of little moment; hence teething and pregnancy are no objections to its use.

Small-pox.

Sixth. The frequent, and often long continued nursing; the extreme anxiety which all parents must feel, although every precaution be made use of, because the issue of the disease is at all events precarious, must forcibly contrast the two diseases.

Seventh. The Small-pox, it is agreed, often calls into existence the dormant germs of disease, or so alters the constitution of the patient, that it more readily receives such impressions, as dispose to various diseases, as scrofula, white swellings, consumption, ophthalmia, blindness, and many more.

Vaccine.

Nursing, anxiety, and death are almost equally strangers to the Vaccine. Death, we may confidently affirm, has *never* employed the Vaccine as a means of destruction.

As much as we know of the Vaccine, we find it efficacious in frequently removing many formidable complaints, and in benefiting a weakly constitution.

Editor.

In the autumn of 1803, about the period of the fall of the leaves, I trimmed some peach trees (which I had set out the preceding spring), of some of their superfluous twigs, which were thrown carelessly down on the border behind the trees. These twigs were soon after covered, unintentionally, with dirt and manure, leaves of trees, &c. (which I threw over the borders) to the depth of, perhaps, six inches and more, so as to be below the depth to which the frost penetrated during the winter. The following spring (1804) in digging up the borders, I turned up the twigs above mentioned, and was much surprised to find them of a rich luxuriant green appearance; so much so, as to induce a belief that if planted, they would vegetate. Accordingly I set about twenty of them in my bor-

ders, and was pleased to find that the buds of six or eight of them began to swell in a few days, before the parent stocks had assumed a disposition to open. The remainder I had set, died, being the smallest and weakest of the number. These six or eight took root, and grew very finely, till they were pulled up and destroyed by my children, with the exception of one, which was more concealed from view, by other plants which came up before it. This grew very finely, and so continued to do during the summer, without any particular care of mine. I expected it would probably die during the heat of summer, but was agreeably disappointed, in finding it increase as luxuriantly as the other peach trees in my garden. This spring (1805) I took it up, to place it in a more convenient situation, and found a very fine root shooting deep into the ground, from the end, where it had been separated from the parent tree. Several vigorous lateral roots also had shot out from above this part to its exit from the earth. It is now growing very finely, and would have been about thrice its original length, had I not cut off the upper part, which had died to nearly a foot in length, from the severity of the winter's cold.

This is, as far as I know,* a new fact in the cultivation of the peach tree, and may, perhaps, lead to some useful improvement of this valuable tree. It appeared to me, the root was much stronger than it exists in young trees cultivated from the stone, which is of some consequence, as it may not be so readily destroyed by the worm, as when the root is more tender. It possesses also the advantage of not requiring a succession of stocks to graft on, as it must doubtless possess all the properties of the tree from which it is taken, and perhaps may be found to bear fruit at an earlier period. Experiment will easily ascertain the most favourable period for raising the peach from

* Since writing the above, on mentioning the fact to a gentleman of my acquaintance, he informed me that the propagation of the peach from cuttings, by a clergyman in England, had succeeded; though nineteen of twenty died in the attempt. The fact, however, related above, may, perhaps, serve to throw some light on the best method of effecting so desirable an end.

cuttings, as well as all the circumstances necessary to insure success. It is with a view to this point, that I have thought a statement of the fact might prove useful. *Editor.*

There exists in the animal economy several instances of the influence which takes place between organs that are not contiguous to one another; one of the most remarkable instances of this kind is the sympathy which subsists between the testicles, and the organs of voice. The larynx is observed to develop itself in several animals during the rutting season, and the smallness of the larynx, the narrowness of the glottis, and the shrill voice, coincide with the state of the inactivity which the testicles show before the approach of puberty. This period however being arrived, the organs for seminal secretions are developed, and become active, while, at the same time, the larynx rapidly increases in males, and the voice takes that grave sound which makes one of the characters of virility. But, on the contrary, when the testicles are cut away before this period, the source of the phenomena which characterise it vanishes, and the organs of voice remain in a state of imperfection. Mr. Dupuytren has lately had an opportunity of confirming the justness of the observation by dissecting the larynx of a man who had been castrated in his infancy, as he found this organ to be one-third less than it is met with in most men of the same age and habit. The glottis was very narrow, and all the organs of voice rather resembled those of a woman, or a youth before the period of puberty. *Medical and Physical Journal.*

Mr. Buchholz has made some experiments on the hydrargyrus muriatus mitis (mercurius dulcis). The common method of preparing this salt is by sublimation of seven parts of mercury and three parts of oxygenated muriat of mercury; the precipitation adopted by Scheele having been laid aside, because apo-

theories are of opinion that this production on being mixed with lime water or alkaline solutions does not sufficiently blacken those substances. The author, therefore, examines whether these productions be really different from one another. For this purpose equal parts of mercury and of nitric acid are mixed together, and left for some time in the cold; it is then exposed to a gentle heat in a sand bath till it begins to boil, after which the liquor is poured, whilst hot, into a solution of muriat of soda, that contains equal parts of this alkali, and mercury. The precipitate obtained by water saturated with sal ammoniac or muriat of ammonia, is boiled and carefully washed; a copious production is obtained; and the author proves, by a series of experiments, that it does not differ from that obtained by corrosive sublimate; this method also appears to him more advantageous, and less dangerous than that by sublimation.

Ibid.

M. Portalez, a physician of Anduze in France, relates a case that lately occurred in a village in France, where death took place in a child six years of age, from the application to the head of arsenic mixed with olive oil, for the purpose of destroying vermin. A few hours after the application had been made, the child was seized with violent pain in the head, with frequent vomiting. A general swelling came on over the body, and the skin was covered with spots of a violet colour; the pulse became weak and creeping; a cold and clammy sweat broke out on the head and chest, with convulsive motions of the muscles of the face. Death took place in a few hours.

Med. & Chirurg. Rev.

Dr. Andrew Ferguson of Aberdeen, strongly recommends the sulphat of soda poultice in chancre, and its efficacy is confirmed by Mr. T. Peaal.---Dr. Ferguson relates its success in a

case which resisted the strong mercurial ointment, alone, and combined with calomel, &c. &c. The poultice is thus made—one ounce of sulphat of soda was dissolved in 4 pounds of boiling water, and when perfectly cold, a little of this water was mixed with a small piece of the crumb of white bread, and kneaded with the fingers to the consistence of a soft poultice. This was applied six times a day, and in two days a change of appearance took place, with considerable abatement of pain, and the chancre gradually healed up.---In more than twelve cases it was equally successful. The Doctor thinks this poultice tends to prevent the absorption of the syphilitic poison, at the same time that it produces a change in the action of the part. A much stronger solution proved effectual in two cases of herpes. In gonorrhœa he found the above poultice dissolved to a thin mucilage highly useful, and he considers it as among the first injections that have been discovered.

Ibid.

An officer many years in the army in the East Indies, being struck with Mr. Churchman's ideas, of reducing to a system all the changes of the land gaining on the sea, and the contrary, which are gradually carried on throughout the world, requests us to make known a few facts which correspond with the Asiatic Researches. He was acquainted with a lady, who died at Madras in the year 1797, at the advanced age of ninety-six years, who used to say that the sea had encroached there about three English miles, within her remembrance; that some years ago a row of cocoa-nut trees stood at the place where the ships now ride at anchor. From the time he left India, in 1794, until his return there in 1799, the sea had encroached so much as to cause the beach-house belonging to the customs, which stood at the south end of the fort, to be removed three miles to the north of it, and that the sea at that place continued to encroach gradually upon the land every year.* *Tilloch.*

* Travellers inform us, that the ruins of ancient Carthage are to be seen many feet below the surface of the water on that part of the African coast where it was

Professor Veau-de-Launay, in a letter to J. C. Delametherie, gives the following account of an accident with fulminating silver, in his laboratory.

“ I had employed one of my pupils, a very good operator, to prepare a small quantity of fulminating silver, which he executed with skill.

The quantity obtained was about five grains, or a quarter of a gramme : it was deposited in a crystal capsule, about two lines in thickness. He had taken a small quantity, about half a grain, which was separated with a card, and then dried, and afterwards detonated by slight friction. Next day, that is to say 24 hours after the preparation, this young person was desirous of taking an equal quantity from the capsule to repeat the experiment, but he had scarcely touched the preparation with the corner of a card, when a violent detonation and explosion took place in the capsule, which was shattered into a thousand pieces. His face was covered with the vaporised preparation, which was almost black, and adhered strongly to the skin ; his eyes experienced a strong shock, which produced extreme pain ; the opaque cornea became red and inflamed. Happily his fear was the greatest evil : by washing and bathing his eyes and face frequently with cold water, the effects of the detonation were soon dissipated.

Fortunately, none of the fragments of the glass had touched his eyes or his face ; they were thrown nearly in a horizontal

situation, and over which ships of considerable size now sail without danger. The following, extracted some years ago from a newspaper, shews a still greater encroachment of the sea upon the land.

“ Though much has been lately said of the sea’s gaining upon the town of Dunwich, in Suffolk, its approaches upon the Yorkshire coast are by no means less visible. Upon the tower of Hornsey church, near a small village within nine miles of Burlington, there is a stone with this inscription :

“ Hornsey church ! when I built thee,
Thou wast nine miles from the sea,
Nine miles from Burlington, and nine from Beverley.

This Hornsey church is now but one mile and a half from the sea.” E.

direction, to a considerable distance : some were thrown upwards of 12 feet.

As the effects of this preparation may have more calamitous consequences, I think it useful to be guarded against the dangers which it may occasion.

Nicholson's Jour.

SUSPENDED ANIMATION.

As the means of restoring suspended animation, cannot be too widely diffused, nor too frequently repeated, it is conceived the following observations from the Royal Humane Society may, with great propriety, be introduced into this work.

Editor.

THE DROWNED.

1. WHAT THOU DOEST,---DO QUICKLY.

2. HUMANE PERSONS *are earnestly* requested to prevent the drowned being rolled on casks, or any violent means employed.

3. On persons being drowned, or suffocated, send to the *Receiving house*. Order spirits, flannels, &c. to be in readiness.

☞ *Directions for the restoration of the drowned ; those suspended by the cord ; intense cold ; or tremendous lightning.*

1. Convey carefully the body, with the head raised, and send to the nearest medical assistant.

2. Strip, dry the body ; clean the mouth and nostrils.

3. YOUNG CHILDREN to be put between two persons in a warm bed.

4. AN ADULT. Lay the unfortunate person on a bed, and in cold weather near the fire. In summer expose the body to the rays of the sun ; and air should be freely admitted.

☞ 5. The body to be gently rubbed with flannel, sprinkled with spirits, flour of mustard, &c. also a heated warming pan, properly covered, may be lightly moved over the back and spine.

6. TO RESTORE BREATHING.

Introduce the pipe of a bellows, (when no apparatus is at hand,) into *one* nostril ; the *other*, and the mouth being closed, *inflate the lungs*, till the breast be a little raised ; the mouth and nostrils must then be let free : THIS PROCESS, to be repeated till the return of life.

7. The BREAST to be fomented with *hot spirits* ; warm bricks or tiles covered, &c. to be applied to the soles of the feet, and palms of the hands.

8. TOBACCO SMOKE is to be thrown gently into the fundament with a proper instrument, or the bowl of a pipe covered, so as to defend the mouth of the assistant.

9. ELECTRICITY to be early employed either by the medical assistants, or other judicious practitioners.

SALT NEVER TO BE EMPLOYED. See 5th head.

INTENSE COLD.

Rub the body with *snow, ice, or cold water*. *Restore warmth by slow degrees* : if life does not soon return, the process of the drowned must be employed.

SUSPENSION BY THE CORD.

1. A few ounces of blood taken from the jugular vein ; cupping-glasses applied to the head and neck ; leeches also, to the temples.

2. The other methods of treatment, the same as recommended for the apparently drowned.

NOXIOUS VAPOURS.

COLD WATER, to be repeatedly thrown upon the face, &c. drying the body by intervals.

If the body feels cold, employ gradual *warmth*, and the plans for restoring the drowned.

INTOXICATION.

The body to be laid on a bed, with the head raised ; the neck-cloth, &c. removed.

Obtain immediately MEDICAL ASSISTANCE, as the *modes of treatment* must be varied according to the circumstances of the patient.

RETURNING LIFE.

THE RESUSCITATING PROCESS should be applied in a more gentle and cautious manner. Stimulants, &c. on the return of animation are now only to be employed with a view to assist and strengthen languid vitality.

ROYAL HUMANE SOCIETY.

Honorary Premiums and Pecuniary Bounties, adjudged in
March 1806.

ESSAYS, DISSERTATIONS, and MODELS, on the following Questions :

1. What are the best means of preventing Shipwreck ?
2. What will be the most probable means of keeping the Vessels afloat, if they spring a Leak, or are in extreme danger ?
3. The most certain methods of conveying assistance from Shore to Vessels in Distress, within a certain distance of Land, and when Boats dare not venture to their aid.

For the First in point of merit, An honorary Gold Medal.---
The second, A Silver Medal.---*The Third*, Ten Guineas.---*The fourth*, Five Guineas.---*The fifth*, Three Guineas.

REGULATIONS.

1. The Models, Drawings, and Essays to be transmitted to Dr. HAWES, *with some Device on the Outside*, and, *within*, the Name of the Author.

2. The Determination of their Merits will be vested in an appointed Committee.

3. The SUCCESSFUL ESSAYS will be published by the SOCIETY ; the others returned to their respective Authors.

Signed, by Order,

JOHN BEAUMONT, Reg.

The following method is proposed for obtaining phosphorus as preferable to any other in point of facility, neatness and simplicity.

“ To one pound of phosphate of soda, value two shillings and six-pence, (sterling,) add one and a quarter pounds of acetite of lead, value three shillings; above one pound of phosphate of lead will be immediately precipitated, and about one pound of acetite of soda may be easily obtained by evaporation. If this should be valued at two shillings and six-pence, the original cost of the ingredients will be reduced to three shillings, add one for fuel and labour, and two ounces of phosphorus will be procured for four shillings.

Nicholson's Journal.

A very curious experiment has been lately repeated before the National Institute. If the air be very rapidly compressed in the ball of an air-gun, a considerable quantity of heat is disengaged from the first stroke of the piston, which is so great that it is capable of setting fire to a piece of fungus match (amadou) placed within the pump. If the body of the pump be terminated by a moveable end formed of a piece of steel firmly screwed in, and furnished in its centre with a glass lens, which admits of the inside being seen, at the first stroke of the piston, a ray of vivid brilliant light will be perceived, which is suddenly disengaged.

This observation is owing to accident; it was made for the first time by a workman in the manufacture of arms of St. Etienne, who, on discharging an air-gun in which the air was strongly compressed, perceived a very sensible light at the end of the barrel.

Ibid.

Mr. Strauß, who has made a number of good experiments on platina, has succeeded in applying this metal to defend the face of copper. The solution of platina was precipitated by muriate of ammonia, then washed and dried, and exposed to

a graduated red heat for half an hour in a covered crucible. The product was a grey coagulated powder; consisting of metallic platina in a state of extreme division. One part of this powder with three parts of mercury did not combine by half an hour's trituration; but upon adding two parts more of mercury, and slightly heating the mortar, he soon obtained a tenacious amalgam, which was rendered very soft by the addition of two other parts of the last-mentioned metal.

A small quantity of this amalgam was rubbed upon a plate of copper, which became completely covered. The plate was then ignited, and was found to have retained a coating of platina. In the next place, he mixed a little of the amalgam with chalk, sprinkled the mixture with water, coated the plate of copper a second time, and again ignited it. The coating was now found to be very perfect, and assumed a shining silver colour under the burnisher.

This chemist remarks that his application of platina to copper vessels must be superior to that of tin; not only in its resistance to acids and saline matters, but in its durability, from the greater hardness of platina; and he adds that the process here described is not more difficult to be effected than the common operation of tinning.

Ibid.

The following extraordinary instance of longevity is given in a late German journal. There is now living near Polosk, on the frontiers of Livonia, a Russian who served under Gustavus Adolphus, king of Sweden. He was present at the battle of Pultawa in 1709, at which time he was 86 years of age. At the age of 93 he entered into the married state, and had children. The family of this patriarch consists of 186 individuals, who reside together in a village which comprehends ten houses. The oldest of his grand children is 102; the age of the next is not less than a century. This old man still enjoys a perfect state of health, though now 180.

Tilloch.

A man lately died at Gloves, near Athewry, in Ireland, aged 117. He retained his faculties to the last, and, three weeks before his death, walked twenty-six miles. He read the smallest print without glasses. He married seven times; the last when 93 years of age. By his different wives he had 48 children. His descendants by these were 236 grand children, 944 great grand children; and 25 great great grand children, the oldest of whom is four years old. His youngest son by his last marriage is now about 18. *Ibid.*

Mr. Westring, of Norkoping, in Sweden, in a letter to Mr. Bergman, at Paris, says: "Tell M. Vauquelin that I have found that the inner bark of the *Pinus sylvestris* acts in the same manner as yellow Quinquina (*Cinchona regia*), and that for two years I have made use of the powder of this bark with the same advantage as Quinquina, and that, in certain cases, it is even of superior utility." *Ibid.*

"The eruptions of Mount Vesuvius have ceased. The following fact may deserve the attention of naturalists:---The English ship of the line which lies before Naples, changing its position during the time of an eruption, one of the anchors, when drawn up, was found to be so hot that the sailors could scarcely touch it. Does not this prove that the principal source of the Volcano is under the sea?" *Ibid.*

A curious phenomenon is mentioned by Dr. Erdman, of Dresden, which was produced by the passion of anger in a boy of a delicate complexion, light hair, and a sanguine temper. During the paroxysm, one half of his face would become quite pale, whilst the other was very red and heated, and these two colours were exactly limited by a line, running down the middle of the forehead, nose, lips, and chin: when heated by violent exercise of any kind, the whole face became equally red.

Medical and Physical Journal.

A foreign journal states, that, at Hellonges, in the canton of Thullen, department of Jemappe, a living toad was lately found inclosed in a vein of pit coal, between two masses of rock six hundred feet below the surface. It was eighteen inches long, and was found alive, but died as soon as exposed to the air.

Tilloch.

A letter from Mr. J. Walker, of Heage, to Mr. Drury, printer of the Derby Mercury, mentions, "that a large living toad was lately found by a labourer at Crich, (Derbyshire), in the middle of hard solid stone, without any visible aperture by which it might get there, and which died immediately after it became exposed to the air."

Month. Mag.

Under the article of "provincial occurrences" it is stated, that "a gentleman lately angling in the river Sleddu, (county of Cornwall), caught, with a natural fly, a trout seven inches in length, with *two* heads; in every other respect it resembled an ordinary fish of that species."

Ibid.

The oliferous China radish, the *raphanus Chinenfis annuus oliferus*, is much cultivated in Piedmont and the Milanese. From three and a half ounces of seed, a farmer obtained a produce of five hundred and eighty-three pounds, which yielded two hundred pounds weight of oil. The Chinese extract from the seed one half its weight in oil. It is employed by the Italians for culinary purposes, burns without emitting any smoke, and gives light as clear as common oil. In the Milanese, the seed is sown in March, the land having been ploughed in autumn, and again before the seed is sown, but not manured. The plants are to be thinned to the distance of three or four inches from each other.

Ibid.

The following method is employed in Germany and Sweden for making artificial Yeast. To 100lbs. of the best malt, consisting of one part of malted wheat and two parts of malted barley, dried in the open air, and well ground and bruised, add 10lbs. of good hops, and brew the mixture with 350lbs. of water to form wort. After a short boiling separate the grains and hops from the wort; which last, by continued boiling, may be reduced to 175lbs. Cool it down as soon as possible to 70° of Fahrenheit, and then mix it with 32lbs. of yeast; the first time may be of common brewers yeast, but in every subsequent operation, of the artificial. The wort will soon ferment, and in a few hours it will be covered with a thick yeasty froth; the whole mass must then be strongly agitated, and at the same time well mixed with from 50 to 75lbs. of fine ground meal, of wheat or barley, malted or unmalted. In a cool place this yeast will keep ten or fifteen days in summer, and four or five weeks in winter. It is said to be as good as the best common yeast for the use of brewers, distillers, bakers, and pastry cooks.

Universal Magazine.

An interesting account of "the state of the Bristol Asylum for the *indigent Blind*," is given in the Monthly Magazine, by which it appears that the total sum of the donations to the 31st Dec. 1802, was £2,278 5 7. Annual subscriptions £240 8.

The society received to the same date for baskets, made by the

blind persons,	-	-	-	-	£390	5	5
For white rods,	-	-	-	-	35	2	
For cloth and laces,	-	-	-	-	13	12	1

£438 19 6

This is a most invaluable institution, where these hitherto unfortunate dependents upon their fellow creatures, "are taught

to practise arts by which, with honest industry, they may, in independence and honour, earn a subsistence for themselves.”*

The usual process of blasting rocks with gunpowder is, after drilling a hole, and charging it with powder, to introduce a wire or small rod, to preserve a communication with the fuze, and then to ram up the remainder of the hole with stone pulverized by the operation of ramming it; after which the wire is withdrawn and the priming introduced. Instead of this tedious operation, which is often attended with danger, the blasting may be effected by introducing a straw filled with fine gunpowder, and then filling the hole with sand.

Experiment: Mr. JESSOP caused a hole, one and a half inch in diameter, and twelve inches deep, to be bored in a knotty piece of oak, twenty inches in diameter; he charged it with three inches of powder, and upon it was laid four inches of sand, which split the wood, with great violence, into six pieces.

Month. Mag.

From the account which has been published of M. GAY LUSSAC's second aerial excursion, at Paris, we are informed that he ascended 21,600 feet above the level of the sea; that at the height to which he attained, the magnetic power underwent no variation. The chemical properties of the air, its weight excepted, remained the same, and the heat of the atmosphere diminished, as he ascended, very nearly in an arithmetical progression.

Ibid.

* When in Edinburgh, I attended some lectures on Chemistry, which were given by Dr. Moyse, (a blind Philosopher, who formerly delivered lectures in this city on natural philosophy,) in aid of an establishment for blind persons.—Such an establishment might be easily formed in every large city; and many, now, helpless beings, might thereby be enabled to assist themselves and families, instead of being a complete burden upon their friends or the public. It is not long since I witnessed the industry of a blind man, who was busily engaged in sawing wood, which his wife lifted for him to his horse, and when cut, threw it into the cellar.

Editor.

NEW PUBLICATIONS.

CAUTIONS to young persons, concerning health, in a public lecture, delivered at the close of the Medical Course, in the chapel, at Cambridge, Nov. 20, 1804; containing the general doctrine of chronic diseases: shewing the evil tendency of the use of tobacco upon young persons; more especially the pernicious effects of smoking cigars; with observations on the use of ardent and vinous spirits in general. By Benjamin Waterhouse, M. D. Professor of the Theory and Practice of Physic, and Teacher of Natural History in the University of Cambridge, 1805, W. Hilliard.—8vo. pp. 32.

THIS lecture was delivered to the students of the University of Cambridge, for the best of purposes, that of calling their attention to the important, though much neglected, consequences of disease, excited by a variety of sources, either alone, or in combination. The influence of these sources, in producing dyspepsia “the grand inlet to all chronic disorders” is well depicted, and, we should hope, would have that proper effect on the persons to whom the lecture is addressed, which its benevolent author intended it to produce.

It appears to us, however, that the worthy Professor has extended his arguments too far, in opposing so generally, the use of tobacco. They are, no doubt, very just, as applied to its use at so early a period, as that, at which it is so commonly taken up; or in the extreme degree to which some of the more advanced slaves to the custom, have sometimes carried it; but we must not oppose the use of any thing, from the abuse to which it may be liable;—as there is nothing so innocent in itself, which might not in like manner be reprobated. We do not however profess to be an advocate for the custom, although we occasionally *indulge* in it; for we are well convinced it may be omitted with advantage, as, at best an useless habit: and we sincerely unite with the author in wishing, that his well-meant en-

deavour to oppose its use in the younger part of the community, may prove successful ; for we fear, among the more advanced it will be considered, (as tea was formerly,) a *slow* poison, which, in moderation, may be safely persevered in, to the utmost limits of life.

A TREATISE on Fractures, Luxations, and other affections of the bones, by P. J. Default, surgeon in chief to the Hotel-Dieu of Paris, wherein his opinions and practice, in such cases, are stated and exemplified. Edited by Xav. Bichat; with plates. Translated from the French, by Charles Caldwell, M. D. with notes, and an appendix containing several late improvements in surgery. Philadelphia. Fry and Kammerer, 1805. 8vo. pp. 413.

To those, who are acquainted with the justly acquired celebrity of Default as a surgeon, this work must prove highly acceptable. The many valuable improvements he has introduced both in the theory and practice of luxations and fractures, cannot but give it a just claim to the particular attention of every surgical practitioner throughout the United States.

In the preface to this treatise, the translator states, that he "is far from affirming, that he has in no instance deviated from the meaning of his original. To hazard an assertion like this, would be assuming to himself more than is consistent with modesty, or, perhaps, with truth. He trusts, however, that such deviations are very rare, that if they do occur they are but slight in themselves, and never connected with facts or principles of practical importance. He can, at least, very confidently declare, that they have never been the offspring of carelessness or design."—Whilst we give every credit to the intentions of the translator, we however think it a duty to point out an error, which has escaped him, and which we must consider of some considerable "practical importance," inasmuch as it appears to us to be the very opposite of the original text. The part we allude to, is at page 33 of the translation, which we are

informed in a note, "is so obscure in the original, that a translation of it would be scarcely intelligible. Instead of a mere translation, therefore, I (*the translator*) have given rather a comment on what I believe to be its true meaning." But, lest we should mistake the idea we entertain, it may be proper to give the original, and the translation itself.*

From the view of the text, and the translation, below, it appears to us that the words "De ferrer très-peu la troisieme bande" implies just the reverse of the translation, "by drawing the third roller a little tighter than usual."—From the whole of the description previously given of the application of this third roller, it evidently appears, that by drawing it tighter than usual, its very indication will be destroyed; for, by so doing the elbow must be raised, and thus carry with it the humerus and the portion of fractured clavicle connected with it; which of course prevents that close union of the fractured extremities, which the whole of Default's bandage is so admirably adapted to secure. The meaning appears to be, that the third roller is to be very little tightened, (*très-peu*). Its action is that of a mere sling to support the elbow, but not to raise it. But this must inevitably follow, if the translation is pursued.

* "XLI. Le Bandage varie peu dans les cas infiniment rares, comme le remarque Hippocrate, de la fallie du fragment externe sur l'interne, deux grandes indications restent toujours à remplir : porter le bras en arrière et en dehors. Il suffit, pour ne pas le diriger en haut, 1^o de ne pas élever le coude dans l'application de l'appareil ; 2^o de ferrer très-peu la troisieme bande."

Œuvres Chirurgicales, &c. Tom. I, p. 85.

"42. In those cases (which, as Hippocrates remarks, very rarely occur where the external fragment projects over the internal one (12), the bandage must be somewhat varied, although the two principal indications, of drawing the shoulder backward and outward, must still, as in other cases, be fulfilled. The only additional circumstance, therefore, necessary to be attended to here, is, not to elevate the shoulder, by pushing it upwards. This may be easily avoided, 1st, by omitting to raise the elbow, when applying the bandage ; 2dly, *by drawing the third roller a little tighter than usual.*"

The parenthesis does not occur in Default's treatise, and, the numbering will be found wrong, owing to the commencement of the Memoir (II.) being considered as the first section whereas the first section of Default is the second of the translator.

Editor.

Not having time to compare the translation generally with the original, we must omit any thing further on this head, and proceed to make a few observations on another part of the preface, to which we cannot give an unqualified assent.

“Several French practitioners,” says the translator, “in projecting improvements on the forms of apparatus of Default, have evidently rendered them more complex, more expensive, and therefore more difficult to be constructed or procured, without adding in the smallest degree to the efficacy of their action. This is particularly the case with respect to Boyer, in his attempt to substitute a new apparatus for a fractured clavicle, in place of that invented by Default. The latter, can be constructed in a very few minutes, by the surgeon or one of his assistants, without any expense, whereas the former must be made by a workman employed for the purpose, and is necessarily attended with both cost and delay. Nor is it always practicable, particularly in the country, to procure a workman capable of making this apparatus. But this is not all. On Default’s plan, the same apparatus for a fractured clavicle will fit, and may be applied to, persons of different sizes and figures; whereas, on the plan of Boyer, each patient must have an apparatus constructed particularly for himself. No practitioner, therefore, can hesitate a moment in deciding to which of these two forms of apparatus the preference is due.”

However much we are disposed to admire the improvement, which Default’s bandage for a fractured clavicle evinces, yet, with deference to the Editor, we cannot but confess, that, in our judgment, Boyer has at least equalled him. Having taken the pains to see them both fairly applied at the same time to two different persons, we are compelled to give the preference to that of Boyer, both from the facility of its application, and from its not requiring such frequent re-applications; as it is less liable to displacement by the motions of the patient. To the objection, that, on Boyer’s plan, “each patient must have an apparatus constructed particularly for him-

self," this is altogether obviated by an improvement on the apparatus, by Mr. Hartshorne, apothecary at the Pennsylvania Hospital; who is now engaged in editing an edition of Boyer's work, in which his improvement is particularly stated. By this, the apparatus may be most conveniently adapted to any patient. It possesses also a material advantage, that it may be applied in case of fracture of both clavicles, with as much facility as to one only: which is not the case with the apparatus of Default. Though such an occurrence is not very likely to take place, yet it must certainly give it a superiority.

We cannot say as much for Boyer's apparatus for making a permanent extension in fractures of the lower extremities. In these, Default's is certainly preferable, especially as it has been improved by Drs. Physick and Hutchinson; which improvements are here detailed by Dr. Caldwell in an appendix to the work—and may be also seen in a paper of Dr. Hutchinson's at page 187 of this museum.

At page 293, the editor has given us the history of a case of luxation of the head of the femur in a forward direction, occurring under the care of Dr. Physick in the Pennsylvania hospital; in which, in pointing out the difference between Default's practice and that of Dr. Physick, he informs us, that Dr. P. placed the strap intended for extension, above the knee. This is certainly correct, but, in fact, the reduction was not accomplished, until the bandage round the limb, to which the strap was affixed, had slipped below the knee, by which the power of extension was greatly augmented, and was, beyond doubt, a very important alteration in favour of the patient.*

In the appendix, we have also related, from the Medical Repository, "Dr. Physick's new and successful method of treating an old and obstinate fracture of the os humeri," by a seton passed between the fractured extremities of the bones. This, no doubt, has already been perused with the avidity it merits,

* For a particular history of this case, see Dr. Physick's account of it, accompanied with a plate of the method pursued, in the present Number.

by every practitioner, who has the opportunity of seeing the Medical Repository.

Should the price of this work (2 dollars and 50 cents) not impede its circulation, there can be no doubt that it may prove essentially serviceable.

THE CONNEXION of life with respiration, or an experimental inquiry into the effects of submersion, strangulation, and several kinds of noxious airs in living animals; with an account of the nature of the disease they produce; its distinction from death itself; and the most effectual means of cure. By Edmund Goodwyn, M. D. Philadelphia—Cist, 8vo. 1805, p. 61.

This excellent treatise, which obtained for Dr. Goodwyn a prize medal from the Humane Society in 1788, is now presented for the first time in an American edition. Its merits have long since received the sanction of an approving public; and we have only to express our wishes, that a continuation of such valuable works may be insured, by that encouragement which our printers may reasonably expect.

The Philadelphia Medical and Physical Journal. Collected and arranged by Benjamin Smith Barton, M. D. professor of Materia Medica, Natural History and Botany, in the university of Pennsylvania.—Part 2. vol. 1. Philadelphia. 1805.—8vo.

The lectures of BOYER upon the diseases of the bones, with an appendix by Joseph Hartshorne, are now in the press, and will be published in July next. Subscriptions to this work are received by James Humphreys, at the corner of Second and Walnut streets, Philadelphia, and by the Editor at the Pennsylvania Hospital.

DEATH.


At St. Andrews, (Scotland), John Rotheram, M. D. F. R. S. Ed. Professor of Natural Philosophy, in that University. For several years before the death of Dr. Black, of Edinburgh, he was chosen by that celebrated Chemist, his assistant, in his public lectures.

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NOTICE TO CORRESPONDENTS.

Communications are received from Drs. Dewees, Smith, Watkins, Firth, &c. which will appear in the next Number.

 *Gentlemen, who are desirous of announcing the various lectures in the different Universities, &c. are requested to forward their notices immediately to the Editor, to be in time for the next number, which will probably appear early in August; as it is contemplated to conclude the second Volume, by the period the Medical Classes terminate in Philadelphia. For the same reason, any communications intended for the Museum, will be particularly desirable as early as possible.* Editor.

ERRATA.

In page 273, line 8—for *inability*, read *irritability*.

In page 384, second line from bottom, for *entertained*, read *contained*.

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